$2.00 US

The Amateur Radio

COMMUNICATOR

JANUARY/FEBRUARY 1994 *FOR THE NOVICE AND TECHNICIAN AMATEUR* Volume 4 Number 1

- *How To Select A Radio*
- *Weather Spotting*
- *How To Find A Club*
- *How To Solder*
- *How To Look Up Ham Calls*



NONPROFIT ORG.
U.S. POSTAGE PAID
DALLAS, TX
PERMIT NO. 4258

1059 nv/de 94
J. A. Maxwell W6CF
P. O. Box 473
Redwood Estates CA 95044

DYNAMIC DUO



NEW

DR-130T

Works Hard / Runs Cool

ALINCO's newest 2-Meter mobile, the DR-130T, packs a big punch. This compact radio delivers 50 Watts of cool running power, and offers the durability and reliability that Hams have come to expect from ALINCO.

Standard features include 50 CTCSS Tones, Programmed Memory scan, Programmable "Time-Out" Timer, CTCSS Encode, and others. With the optional EJ-19U plug-in module, 100 memory channels are available. All memory channels can store "odd-split" frequencies, and also store CTCSS Encode/Decode status.

DJ-180T

Clearly Superior

Ergonomic, rugged design, combined with excellent sensitivity and great sound make this the radio of choice for demanding operators.

This rig comes standard with CTCSS encode and decode. Ten memory channels come standard, and the unit can be upgraded to 50, or even 200 Memory Channels with optional plug-in chips.

Odd Splits! This radio can store repeater offsets from 0 to 15.995 MHz. A different offset can be stored in each memory channel, and most other functions can also be stored independently in each memory channel.

CHECK OUT THE AFFORDABLE TECHNOLOGY OF THE 90'S. CHECK OUT ALINCO.

Holiday Price Break
Discounts available thru Dec. 31 '93
DR-600T $30 DJ-F1TH $20

ALINCO ELECTRONICS INC.

For brochures and operation manuals, try our new 24 hour Hot Line.
Telephone: (310) 618-9017

438 Amapola Ave., #130 Torrance, CA 90501
Phone:(310) 618-8616 / Fax:(310) 618-8758

CONTENTS

FEATURES

8 Ham Radio News You Can Use
by Bill Pasternak, WA6ITF
The Washington Newsline

12 How To Select A Radio
by Kevin Karamanos, WD6DIH
Your First Hamfest, Your First Radio What To Choose

16 How To Solder
by D-I-Y Radio
Hints And Tips On Soldering

19 How To Hear The Satellites
by NARA Staff
You Can Hear Dove (Oscar 17) With Your Two-Meter Handheld Radio

DEPARTMENTS

2 In My Opinion
by Don Stoner, W6TNS
Editorial

4 How To Inspire Young People
by Carole Perry, WB2MGP
Weather Spotting

6 How To Look Up Ham Calls
by NARA Staff
You Can Have A Call Letter Book In Your Computer

14 How To Find A Club
by Matt J. McCullar, KJ5BA
Welcome To The Clubs!

20 Letters

ON THE COVER



Thanks to NASA for carrying another SAREX (Satellite Amateur Radio Experiment) into space and congratulations to the crew on another successful Shuttle mission. As this is being written, the repairs to the Hubble telescope have just been completed. Who would have thought, 20 years ago, that we would be able to make "service calls" in space?

The Amateur Radio Communicator

The Amateur Radio Communicator is published bi-monthly and is the official journal of the National Amateur Radio Association (NARA), P.O. Box 598, Redmond, WA 98073-0598.

The National Amateur Radio Association is incorporated in the State of Washington and is a non-profit organization as defined in Section 501(c)(3) of the Internal Revenue Service Code.

Organization Goals

The broad goal of NARA is to publicize Amateur Radio and to encourage people to become Amateurs by earning an entry level Novice or Technician Class license.

The organization has five specific goals within this broad framework. These are to a) publicize Amateur Radio to the general public, b) attract young people to the Amateur Radio Service, c) increase the stature and benefits of the Novice and Technician Class licenses, d) represent the interests of Novice and Technician Class Amateurs at the national level and e) make all Amateurs aware that our radio frequencies are in jeopardy from commercial interests. More specifically:

A. NARA advertises in consumer publications to create public awareness of the Amateur Radio Service.

B. NARA is interested in encouraging young people to join our fraternity. A core of young people insures growth of the Amateur Radio Service.

C. NARA believes that the Novice and Technician classes are important and respected entry level licenses into the Amateur Radio fraternity. We are committed to increasing their benefits and stature in the Amateur Radio community.

D. NARA is committed to representing the interests of all Novice and Technician Class Amateurs at the national level. We continue to review information from the Federal Communications Commission and submit material to them with the Novice and Technician perspective in mind.

E. Finally, NARA is very concerned that confiscation of frequencies assigned to the Amateur Radio Service will continue. NARA is committed to obtaining new spectrum for the continued growth in numbers of Novice and Technician Class Amateurs.

Membership and Subscriptions

Those joining NARA receive a subscription to *The Amateur Radio Communicator* for one year. The combined cost of membership and magazine is $10.00 per year in all areas with a U.S. ZIP code.

The NARA membership and subscription to *The Amateur Radio Communicator* cannot be separated.

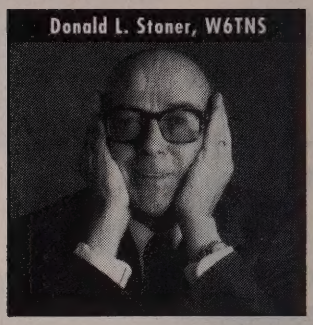
It is not necessary to hold an Amateur Radio license to become a member of the National Amateur Radio Association. The only "qualification" is an interest in radio communications.

How To Contact NARA

National Amateur Radio Association
P.O. Box 201407
Arlington, TX 76006
Inquiries (817)860-0978
Orders only 1(800)GOT-2-HAM
1(800)468-2426
FAX (817)860-0979
MCI Mailbox 365-8035
CompuServe 70371,111
Advertising.....(817)860-0978

Editor/Publisher Donald L. Stoner, W6TNS
General Manager Joe Condron, AA5LD
Marketing George Ure, AC7X
Technical Editor Terry Dettmann, WX7S
VHF Editor.....Gordon West, WB6NOA
Technical Advisor Dan Lewis, N7NQL
Programing Olan Hanley, KB7GIS
Publication Deb Davis Bundy, N7IHY
Finance Lucy Heenan
Advertising Joe Condron, AA5LD

NARA
NATIONAL AMATEUR RADIO ASSOCIATION
P.O. Box 201407
Arlington, TX 76006



If You Have A "Choice," Grab It!

by Don Stoner, W6TNS

IT SEEMS LIKE SUMMER was here only yesterday. Now suddenly, it is a brand new year. I'm also a year older and, of course, a year wiser. Thus, it is time for my annual tirade about the sorry state of our educational system. Unfortunately, my lectures do not seem to make much difference—the state of K-12 conditions degenerate with each passing month. But it does make me feel much better to unload my concerns on you, my faithful followers.

It cannot be said that no one has tried to save the situation. During the administration of President Bush, a non-partisan attempt was made to reverse the inexorable tide. This was an opportunity to turn out high school graduates with a diploma that meant something other than that they were breathing on graduation day.

The program, created in collaboration with the nation's governors, was called "America 2000." The stated overall goal was to create a system that gives our young people an education second-to-none. The Commission, directed by Lamar Alexander, actually had rather modest goals. They included a 90 percent high school graduation rate and standardized student competence in math, science, geography and English.

According to the National Education Goals Panel, American students do not perform **at a level** needed for success, **at any stage of their school education**. Less than one-quarter of today's students are able to master challenging math problems and only a third meet high reading standards.

During 1994, 12 percent of enrolled students **will fail to graduate**. Those who do not finish K-12 will take menial jobs and earn less that half the amount of a 1970s dropout.

According to the National Education Panel, American students do not perform at a level needed for success, at any stage of their school education.

School discipline has degenerated at an exponential rate. Can you believe that some young people have to pass through a metal detector, to check for guns and knives, when they enter their school? Only half of the 10th graders say they feel safe at school. More than half say that disruptive peers interfere with their getting a good education.

And what about America 2000? At a recent meeting of state governors and Congressional representatives, the conclusion was that **not one single goal will be met by the year 2000!** So much for getting a world-class education.

This past November, the folks in California blew another opportunity to reverse the trend, at least in their state. Over 12 percent of the nation's elementary and secondary school students reside in California. At one time, California had the finest public university system of any state, or any country in the world. What a sad state of affairs to see the downhill skid of education on the left coast. Today, 4th graders in California score next to the bottom on reading tests. Only Mississippi ranks lower!

During the last election, California voters were asked to pass an referendum called Proposition 172 or "school choice," as it was popularly known. Under this Proposition, parents would be allowed $2,600 yearly for each of their children to help pay the cost to send them to a school of their choice, public, private or parochial. California voters, with the help of "megabux" from the California Teachers Association and the National Education Association, defeated the initiative. Those in favor of "choice" were out monied by the unions at a 10-to-one ratio. California teachers were assessed a "contribution" to the union warchest to help defeat the measure.

Many children who graduate from California schools still cannot make change, haven't the foggiest idea of where England is located, and cannot name the capitol of the state. Their education will certainly not improve with the defeat of Proposition 174.

Why is choice the best answer to reverse the downhill slide of our children's education? Today our schools have become little more than warehouses where our children are stored each day. The system, if it can kindly be called that, is based on the least common denominator. This is called, unflatteringly but accurately, "dumbing down" the class. The standards to pass the course and matriculate to the next higher grade are made so low that **everyone passes**, even those with poor reading skills, or who can barely speak English. If they did not do this, many of the students would stack up like cordwood each year.

As a result, the children who are attending school because they want a good education are shortchanged. They are unchallenged and bored. Parents of these children want to be able to put them in a school where they are challenged to their maximum potential, and beyond.

Why is "school choice" opposed? Civil libertarians howl that minorities will be short changed. They feel that the public school system under "choice" will wind up accommodating only the unmotivated, and they are probably correct. But their rejection of "choice" is totally misguided. **Anyone** can qualify for the $2,600 annual voucher regardless of color or financial circumstance. The "rub" is this. More people will want to put their children in private or parochial schools than can be accommodated. Thus, it will be necessary to set up entrance standards to these schools. The people who attend school, because the law says they must, will be left out in the cold, attending a further substandard public school system. Only the best of the best will be able to "cut the mustard," and meet the standards. But America needs the best of the best to compete in the world marketplace. The lowest of the unmotivated, simply won't "cut it," when we have to compete for our economic survival.

Motivation cuts across racial and ethnic lines. The Cambodian children, who came to this country with nothing more than the clothes on their back, can qualify just as well as the kid whose mother or father is a doctor. Asian immigrants prove it is a lie to say that minorities and economically deprived people cannot get a good education.

I love to hear liberals "weasel wording" that "choice" is unfair to minorities. No matter how they

(Continued on page10)

Rx Doc's Can Fill Your Prescription with.....

YAESU
Amateur Radio



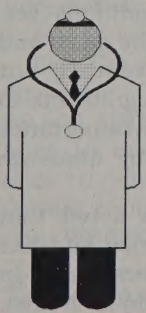
Take one FT-890 and operate from your home in the morning



Take one FT-2200 and call me on the Autopatch

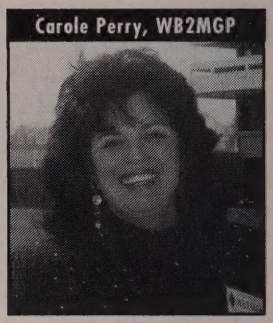


Take one FT-530 and call your friends on the 144 and 440 MHz bands



Doc's Communications
702 Chickamauga Avenue
Rossville, GA 30741
CALL 706-861-5610 or 706-866-2302 TODAY!
or send your FAX to 706-866-6113

We welcome newcomer inquiries


Carole Perry, WB2MGP

Weather Spotting

by Carole Perry, WB2MGP

WITH THE START of a new school term, I try to put together an exciting list of programs to introduce to the children in my Amateur Radio classes. With over 450 youngsters in my classes every term, it's important that I provide something for everyone in all of the 13 classes of 6th, 7th and 8th graders. Fortunately, for the teacher of Amateur Radio in the classroom, there are many exciting facets of the hobby to use for motivational lessons.

One of the talented young ladies I had the pleasure of meeting several years ago is Angie Fischer, KB0HXY. At age 13, Angie was the winner of the *1992 Westlink Young Ham of The Year* award. She appeared at the '92 *Youth Forum* at Dayton with me, and she was terrific. Angie has spoken with the children in my radio classes on the CQ All Schools Net many times. My students always enjoy hearing about the fun things Angie gets involved in.

Angie continues to stay in touch with me, and I love to share her adventures with other children. She's a great role model. The latest interesting activity that Angie is participating in is Weather Spotting for the St. Louis County "Skywarn" Program and the Weather Alert Radio Net.

Angie says, "Weather spotting can be an exciting and fun experience, and it is an excellent way to serve your community." The purpose of this program is to assist the National Weather Service in the reporting of severe weather and to assist in providing correct and early warnings to the citizens of the area.


Angie Fischer, KB0HXY, on one of her Weather Spotting missions.



Angie says, "Weather spotting can be an exciting and fun experience, and it is an excellent way to serve your community."

Angie tells me that fortunately she hasn't had to be involved with any really serious conditions yet. She has listened to the nets and watched for severe weather but never had anything significant to report. She realizes the importance of accurate reporting by hams on the ground.

The weather net is a net that meets on a set frequency and has trained weather spotters check-in and report the weather in their area.

They note if there is a severe condition like strong wind, fierce lightning, hail, funnel or wall clouds, tornado activity, position of storm, destructiveness of storm, etc; The nets in St. Louis County get activated if the National Severe Storms Forecast Center issues a tornado watch that includes the surrounding area, or if The National Weather Service Office requests their help.

When a spotter checks in they give their name, spotter code number, location, and a brief statement about what they personally have observed. Second hand information is not acceptable.

To become an official weather spotter, you must attend a class that teaches what to do and how to spot severe weather conditions. A graduate of the class receives a certificate and a card with a spotter code number. After 2 years you need to take the class again.

To find out where a class is in your area, contact your local RACES or ARES representative.

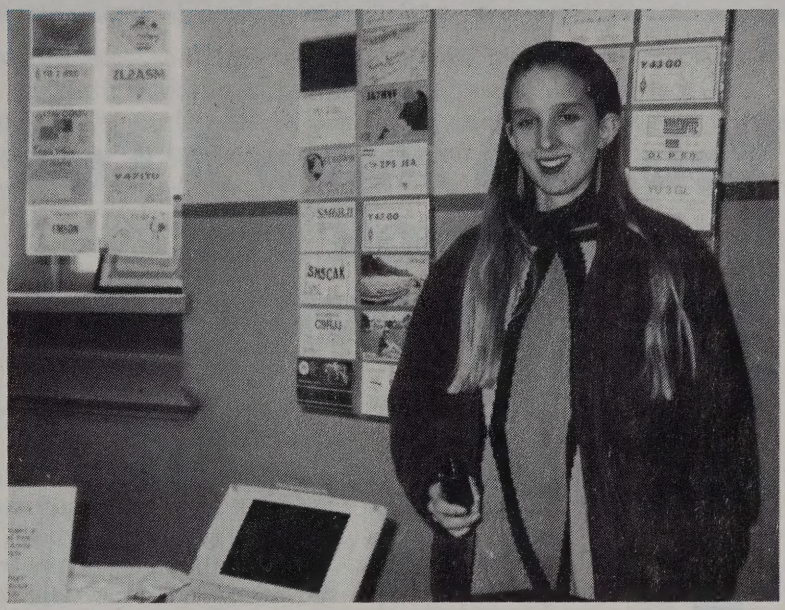
I certainly plan to include a unit on this activity for my Amateur Radio kids this year. You never know who will be influenced by this kind of exposure. It's another example of how a teacher can bring so many fascinating things into the classroom via Amateur Radio.



Many thanks to Angie for sharing the information. We'll be looking forward to speaking with her on the air this term.

The CQ All Schools Net meets Tuesdays and Thursdays at 17:30 UTC on 28.303 MHz (if you don't hear anything after 10 minutes, try 21.325 MHz; and after 10 minutes, 14.325 MHz). Listen up for net controls, Carole, WB2MGP, Gordon, WB6NOA or Jim, N4MDC.

73 from Carol, WB2MGP ❑



Hardin Electronics
5635 E. Rosedale Street
Fort Worth, Texas 76112
FAX(817)457-2429
Questions (817) 429-9751

Proudly serving the Amateur Community for over 25 years.

orders & price quotes 1•800•433•3203

KENWOOD

Amateur Radio Sales and Service

TH-22AT
Newest, Smallest
Kenwood 2m HT
only $299.95



ICOM STANDARD YAESU

Coupons on Radios
Call for information

New Mobile C5718DA
New 2m HT C158A

New Tiny HT
2m FT-11

VISA•MASTERCARD•DISCOVER•AMERICAN EXPRESS

Prices and availability are subject to change without notice.

You Can Have A Call Letter Book In Your Computer

by NARA Staff

FOR DECADES, thousands of hams made a call letter book part of the equipment in their shack. Want a QSL card? "I'm in the call letter book" was a standard reply. Whoever you were speaking with didn't bother to give you their mailing QTH. They knew you could look it up in your call letter book.

But as the ranks of Amateur Radio continued to develop, the call letter book got bigger and bigger while the typeface got smaller and smaller. And even worse, the price got higher and higher. The last call letter book we had around NARA cost more than $26.00 and, if our memory serves us correctly, it was published four times per year.

Now that the age of computers is upon us there are two excellent alternatives to printed books of which you should be aware. Probably the most famous and extensive is the HAMCALL CD-ROM sold by Buckmaster Publishing. If you have a CD-ROM on your computer, you should be aware of this incredible disk. It contains over one million ham call listings, not only in the United States, but in over 95 countries. They include a file of more than 100,000 U.S. call signs cross referenced old to new, plus address changes.

Now that the age of computers is upon us there are two excellent alternatives to printed books.

The Buckmaster disk is more than a listing of ham calls. They include more than 15,000 (public domain and shareware) programs and data files of interest to hams on a silver platter. It's safe to say they include virtually every piece of shareware and public domain programming written for ham radio.

Incidentally, if you only need to look up an occasional call, Buckmaster also has a call lookup BBS system. For a very minimal fee, they allow you to access their data base by modem. For information on this, or to order their CD-ROM (price $50.00 plus $5.00 shipping), call 1-800-282-5628 or FAX them at 1-703-894-9141.

If you are not fortunate enough to have a CD-ROM, you can still put a call letter data base on your computer. RT Systems sells a program called the SAM Amateur Radio Callsign Database. You call lookup by call, name, city, state or ZIP code. The program has a provision for printing lists or labels.

The entire ham data base, called SAM, is compressed onto a dozen or so 3.5-inch disks. The program stores all 600,000 plus calls in a compressed format to minimize hard disk space, but be prepared to give up about 17 MB of hard disk space. The scheme that SAM uses is quite amazing. It does not seem to slow down access and decompression noticeably, at least on our 486DX computer.

The 1994 version should be out shortly and is priced at $39.95. For more information about SAM, call RT Systems, Inc., PO Box 8, Laceys Spring, AL 35754. To order, please call 1-800-723-6922. ❑

Only one company can offer you the world of ham data so completely.

"ONLINE" U.S. CALL DIRECTORY
Hamcall service gives you ALL hams via your computer & modem. Updated each month! Only $29.95 per year. Unlimited use - you pay for phone call.

U.S. AMATEUR RADIO MAIL LISTS
Labels, floppy disks, CD-ROM, mag tape
★ NEWLY LICENSED HAMS
★ ALL UPGRADES
★ UPDATED EACH WEEK

HamCall / CD-ROM
550,000 HAMS plus
1,000's of Public Domain
Amateur Radio Programs and Data
NOW with International

CD-ROM	$50.00
Shipping (per order)	$5.00

U.S. CALL DIRECTORY
(on microfiche)

Call Directory - by callsign	$10.00
Name Index - by last name	$10.00
Geographic Index - by state/city	$10.00

All three: $25
$3 shipping per order

BUCKMASTER PUBLISHING
Route 4, Box 1630
Mineral, VA 23117
703: 894-5777 800: 282-5628

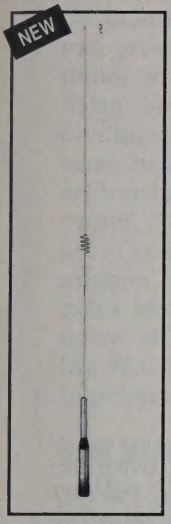
MOBILE ANTENNA PRODUCTS

COMET

MODERN, MULTI-BAND ANTENNA SYSTEMS

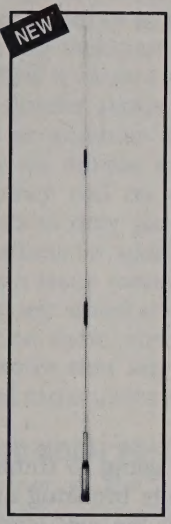
Modern, high-performance stations use COMET Antennas, Duplexers, Triplexers and Accessories! COMET products are designed to provide an exceptional level of signal quality and coverage area. Whether operating mobile or from your base station, COMET products make you sound good. No other product line has the selection, convenience, quality and performance!

NEW

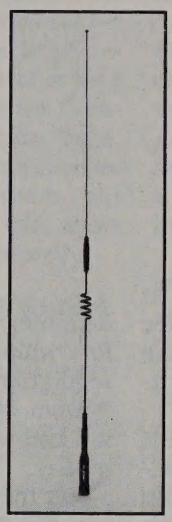


SB-5/SB-5NMO
Dual-Band 146/446MHz
Gain & Wave:
146MHz 3.0dBi 1/2 wave
446MHz 5.5dBi 5/8 wave x 2
VSWR: 1.5:1 or less
Max Power: 120W FM
Length: 38"
Connector: PL-259 or NMO style

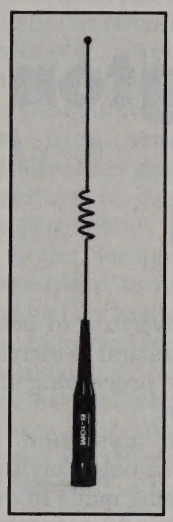
NEW



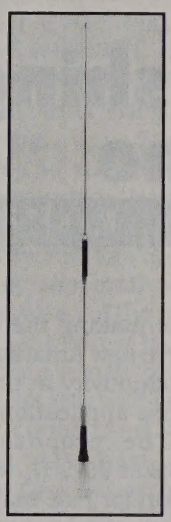
SB-7/SB-7NMO
Dual-Band 146/446MHz
Gain & Wave:
146MHz 4.5dBi 6/8 wave center load
446MHz 7.2dBi 5/8 wave x 3
VSWR: 1.5:1 or less
Max Power: 70W FM
Length: 4' 7"
Connector: PL-259 or NMO style



B-20/B-20NMO
Dual-Band 146/446 MHz
Gain & Wave:
146MHz 2.15dB 1/2 wave
446MHz 5.0dB 5/8 wave x 2
VSWR: Less than 1.5:1, 144-148MHz, 440-450MHz
Max Power: 50 watts
Length: 30"
Connector: PL-259 or NMO style
Construction: Black, w/fold-over

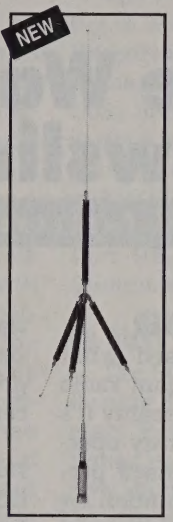


B-10/B-10NMO
Dual-Band 146/446 MHz
Gain & Wave:
146MHz –dB 1/4 wave
446MHz 2.15dB 1/2 wave
VSWR: Less than 1.5:1, 144-148MHz, 440-450MHz
Max Power: 50 watts
Length: 12"
Connector: PL-259 or NMO style
Construction: Black, cellular look-a-like



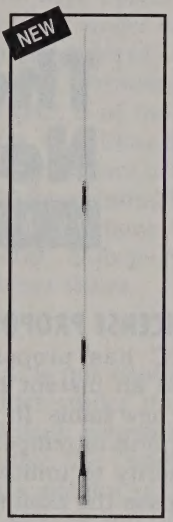
CX-224/ CX224NMO
Tri-Band 146/220/446MHz
Gain & Wave:
146MHz 2.15dB 1/2 wave
220MHz 3.6dB 5/8 wave
446MHz 6.0dB 5/8 wave x 2
VSWR: 1.5:1 or less
Max Power: 100 watts
Length: 3'
Connector:
CX-224 PL-259
CX-224NMO NMO Style

NEW

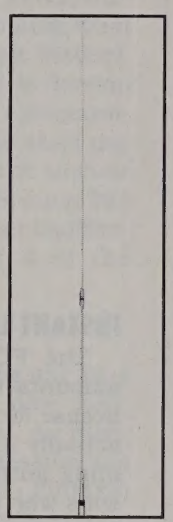


HA4S
Quad-Band HF Mobile
7, *14, 21, 24, 28MHz
Wave: 1/4 wave
VSWR: Less than 2:1
Weight: 1 lb. 14 ozs.
Length: 4' 4"
Connector: PL-259
Construction: Heavy Duty, w/Fold-Over
***L-14HS:** Optional 14MHz Coil

NEW

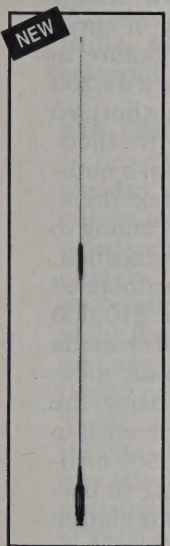


FJ-15S
Tri-Band Mobile
50/146/446MHz
Gain & Wave:
50MHz 2.15dBi 1/4 wave
146MHz 4.5dBi 5/8 wave center-loaded
446MHz 7.2dBi 5/8 wave x 3
VSWR: 1.5:1 or less
Max Power: 120 watts FM
Length: 4' 10"
Connector: PL-259



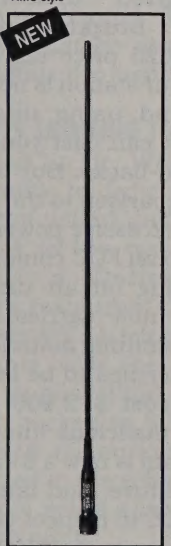
CHL-185
146MHz
Gain & Wave:
4.1dB 5/8 wave
VSWR: 1.5:1 or less
Max Power: 200 watts
Length: 4' 8"
Connector: PL-259

NEW

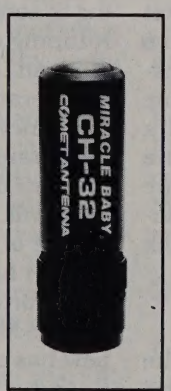


CH-722SA
146/446MHz HT Antenna
Gain & Wave:
146MHz 3.0dB 1/2 wave
446MHz 5.5dB 5/8 wave x 2
Max Power: 50 watts
Length: 36"
Weight: 3.9 ozs.
Connector: BNC

NEW



SH-55
146/446MHz HT Antenna
Gain & Wave:
146MHz 1.5dBi 1/4 wave
446MHz 3.2dBi 5/8 wave
Max Power: 10 watts
Length: 15.5"
Connector: BNC



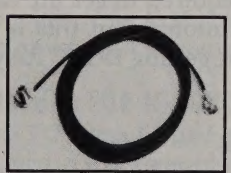
CH-32
Miracle Baby 146/446MHz HT Antenna. Compact design, the smallest HT antenna available!
Gain & Wave: 0dB 1/4 wave
VSWR: 1.5:1 or less
Max Power: 10 watts
Length: 1.75"
Connector: BNC



RS-21
Trunk, hatchback, rear door (van, blazer, etc.) mount. Adjustable to virtually ANY angle. Rubber-coated base protects vehicle paint.



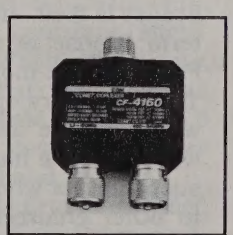
RS-820
Heavy-duty low profile trunk lip or hatch back mount. Rubber coated base protects vehicle paint.



3D4M Standard Cable Assembly
13.5 feet of low loss coax. Gold plated UHF (PL-259/SO-239) connectors.
3D5M Standard Cable Assembly
Same as 3D4M, but 17 feet of coax.



CK-5M Deluxe Cable Assembly
13 feet double shielded very low loss coax. + 12" RG-188 teflon coax. Gold-plated UHF (PL-259/SO-239) connectors. Allows easy entry from a lip-mount w/o causing coax or weather strip damage.
CK-5M5 Deluxe Cable Assembly
Same as CK-5M, but 17 feet of coax.



CF-4160K, CF-4160I, CF-4160J
146/446 MHz
Band Pass, Ins. Loss, Max Power:
1.3-150MHz, 0.1dB, 800w PEP
400-540MHz, 0.2dB, 500w PEP
Isolation: 60dB
CONNECTORS:

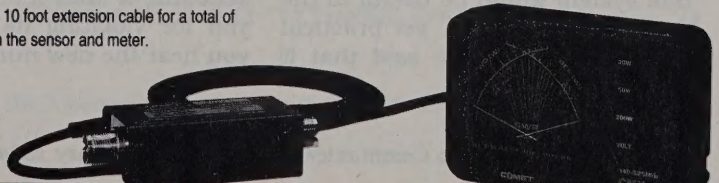
	CF-4160K	CF-4160I	CF-4160J
Output:	SO-239	SO-239	SO-239
Low In:	PL-259	PL-259	SO-239
High In:	PL-259	N-Male	SO-239

NEW

CROSS NEEDLE METERS

- Separate Meter and RF Sensor allows for convenient placement of the meter.
- Cross Needle Meter provides FWD, REF, and VSWR simultaneously.
- The RF-Sensor is a compact design, and has an extremely low-loss circuit.
- Beautifully illuminated when connected to power supply.
- 6 foot cable standard.
- Optional EKS-3 10 foot extension cable for a total of 16 feet between the sensor and meter.

CMX-1	CMX-2	CMX-3
1.8-60MHz	1.8-200MHz	140-525MHZ
0-2KW	0-200W	0-200W
30/300/2KW	20/50/200W	20/50/200W



COMET products are available from most major dealers. For customer service, or a complete catalog, please call us at 800/962-2611. We're confident COMET products and accessories will enable you to enjoy Amateur Radio to its fullest!

N.C.G. CO.
NCG
NCG Companies
1275 North Grove Street
Anaheim, CA 92806

The Washington Newsline

by Bill Pasternak, WA6ITF

INSTANT LICENSE PROPOSED

The FCC has proposed what amounts to an instant ham radio license for new hams. In reality it's actually a form of temporary operating authority to unlicensed persons who pass the examination for a new Amateur operator license, and it signifies a major change in the attitude of the Commission toward getting newly-tested operators on the air.

The new system would work this way: the temporary operating authority would begin when the exam is passed and an application for a license is filed, and last until a full-term license is received from the FCC, but not more than 120 days. The temporary operating authority would not be available to anyone whose license has been revoked or suspended or who has been involved in other enforcement proceedings before the FCC. Under the proposal, the Commission also would reserve the right to cancel such temporary operating authority without a hearing if a need to do so arose.

Those operating under the proposed new rules would use call signs determined by the initials of their name and by their mailing address. The prefix for each such call sign would be WZ followed by a number indicating the appropriate Volunteer Examiner Coordinator region.

The Commission said it believes this system would be useful to the Amateur community, yet practical to implement. It also said that it was making the overture to better serve new Amateurs and to increase productivity in the processing of license applications.

The proposal, assigned PR Docket 93-267, was based on a petition for rule making made in July by the Western Carolina Amateur Radio Society V.E.C. of Knoxville, Tennessee, with the previous designation of R M-8288.

DOVE RETURNS TO THE AIR

After a long absence, the DOVE OSCAR 17 satellite is back on the air. It is presently sending packet telemetry and short text bulletins on 145.825 MHz FM. DOVE's transmissions can be copied by anyone with a 2-meter FM receiver and a standard packet radio TNC. More work is required to get the satellite fully operational, but this is a major step in getting DOVE fully back on line.

MIR GEAR

Plans are afoot to change the Amateur Radio equipment on board the Russian Mir Space Station. In the future not only 2 Meters but also 70 cm and even 23cm operation can be expected. ATV equipment for use aboard the space station is presently being developed.

NEW FINE SCHEDULE

The FCC has released its updated schedule of fines that it can charge you for violating its rules. When you hear the new numbers you are definately going to think twice before willfully breaking any Part 97 regulation. We will start from the bottom of the monetary forfeiture list and work our way up to the big money.

On the low end of its fine schedule, the FCC has added a new category called "*assorted minor violations.*" Breaking any of these carry a $625 price tag. Failure to identify your station is now a $1,250 offense and using unauthorized equipment can cost you five thousand green-backs. But that's nothing in comparison to the next three. Running excessive power, failing to respond to an FCC communication, or operating on an unauthorized frequency now carries a $10,000 fine. Transmitting material or words that are deemed to be legally indecent will cost $12,500; being the source of malicious interference to another ham is now a $17,500 monetary forfeiture, and failing to permit the FCC to inspect your station now has a hefty $18,500 price tag.

And if you really want to help reduce the national debt, just get caught sending a false SOS. Misusing a distress or safety frequency or issuing a false distress communication brings a $20,000 fine for each transmission. That's right, $20,000 per violation! And we should also remind you that these dollar amounts are what the FCC calls "*base fines,*" the recommended amount for a first offense. And while the Commission does reserve the

right to make downward adjustments if a violator cooperates and shows good faith, it can also raise the amount by up to 90 percent if it can prove the violation was intentional or that it caused substantial harm. In simpler terms, you could be dinged as much as $33,250 for something as simple as jamming an emergency call on a local repeater. This is only part of a long list of violations for which the Commission can issue monetary forfeitures. Most are aimed at commercial users of the radio spectrum, but the FCC notes that any can apply to personal radio users as well.

HAM NAMED NOBEL PRIZE WINNER

The winner of the 1993 Nobel Prize in Physics, Princeton University Professor Joseph H. Taylor, K1JT, says that he attributes his success in the sciences to his early involvement in Amateur Radio. According to news reports Taylor, who shared this year's award with Princeton colleague Russell A. Hulse, says that he developed his scientific skills through ham radio.

HAM ADMITS JAMMING THE BIG MAC

Terry Van Sickle, WB5WXI, has pleaded guilty in federal court to one count of willful and malicious interference to the two-way radio system at a Dallas, Texas, McDonald's restaurant. Van Sickle is the former WFAA television news photographer who the FBI questioned on August 22nd, after they found him parked in his van near the fast food restaurant. The FBI was attracted to the vehicle after its investigators noted a large number of antennas on it.

As previously reported, the FBI interrogated Van Sickle and a friend for about three hours before releasing them. At that time no charges had yet been brought. Van Sickle even claimed his innocence by way of an article appearing in the September 30th issue of the *Dallas Observer* newspaper. He even told the *Observer* that it is a common practice for electronic enthusiasts to talk to fast-food restaurants over the radio relay food ordering systems. He said that these same radio buffs regularly post the frequencies of fast-food restaurant radio systems on computer bulletin boards and that the frequencies used by McDonald's was readily accessible to almost anyone.

But on October 27th, that all changed when WB5WXI was charged by the government as being the source of the interfering signal. At a hearing, Van Sickle admitted his guilt and entered into a settlement, apparently to avoid a lengthy trial.

In the plea agreement, Van Sickle guaranteed to fully cooperate with any further investigation of the matter, to surrender all interest in the thousands of dollars worth of his two-way radio equipment and computers that the government had seized as evidence in the case, and on demand of the court, to submit to interviews by the United States Attorneys office regarding his ability to satisfy any fines or restitution order that might be imposed.

Van Sickle has been ordered back to court on January 12th, 1994, for sentencing. At that time he could face up to a year in prison, a fine of up to one-hundred thousand dollars or both. In addition, he can be ordered to pay restitution to McDonald's for any damages and loss of income that his actions may have cost the company, and he could also face a civil suit if McDonald's feels that the compensation awarded it was insufficient.

FINE ISSUED FOR IGNORING NAL

The FCC has issued a Notice of Forfeiture in the amount of $10,000 against David Plourde, N1IZR, of Lewiston, Maine. The Commission says that they want him to pay up because he has failed to file an explanation of his on-the-air operations on the Class D, 11-meter Citizens Band.

By way of background, back in 1992 Plourde was issued a Notice of Apparent Liability to Monetary Forfeiture in the amount of $10,000 for allegedly operating on the 11 meters using a non type-accepted transmitter and linear amplifier. Plourde was given the usual thirty days in which to respond to the fine, but as of October 12, 1993, he had not filed an answer to the forfeiture notice.

The FCC says that it is not willing to wait any longer to hear what Plourde might have to say. Instead, it has ordered, pursuant to Section 503, Sub-part B of the Communications Act, that Plourde shall pay a monetary forfeiture in the amount of $10,000 for violating Section 301 of the Communications Act and Section 95.409, Sub-part A of the Commission's Rules.

CB BUST

The FCC is not wasting any time issuing fines under its new monetary forfeiture schedule. As mentioned earlier, the Commission can now ding a violator up to $20,000 for a first offense and that's exactly what has happened to some alleged Part 95 violators.

About a dozen accused marketers of illegal equipment targeted at the Class D 11-meter band have each been fined between $6,000 and $20,000 by the FCC. The Commission says that the stores in question are located in California, Colorado, Florida, Louisiana, Michigan, Texas and Washington state. The FCC says that they were all engaged in the sale of illegal CB radios or linear power amplifiers for the 11-meter band.

Further, several firms were fined $7,000 each for allegedly marketing non-FCC certified personal computers and unauthorized UHF modulators and transmitters operating on TV channels 14 to 26.

VE TEST FEE INCREASE

The cost of getting a ham license is going up in 1994. The FCC has announced that effective January 1, 1994, the maximum allowable reimbursement fee for an Amateur operator license examination will be $5.75. That's up fifteen cents from the current $5.60.

73 de Bill, WA6ITF ❑

In My Opinion

(Continued from page 3)

"spread the jam on the bread," they wind up insinuating that minorities (other than Asians, of course) can't "cut it" in a competitive society. Of course they can—anyone with sufficient motivation can. It is up to the will of the individual, nothing more, nothing less.

A dual-track educational system and "choice" is the wave of the future. Maybe California, in its headlong rush to bankruptcy, can't ride the wave but other, more progressive, states will certainly do so.

Advertising Choice—We were truly sad to hear that *Amateur Communications* had dropped out of the publishing scene. It was a "class magazine," and written in a style which was easily understandable to newcomers.

With the passing of *Amateur Communications*, NARA's member publication, *The Amateur Radio Communicator*, has become the **number one medium** for advertisers who want to reach new hams. And, at long last, those who make products of interest to Amateurs, are starting to take us seriously.

Those who advertise in the "*Communicator*" have discovered that NARA members are brand loyal. Recently we did a mini-survey, asking the brand of those who had purchased a handheld recently. More than 90 percent reported they bought an Alinco or Kenwood.

Optoelectronics is showcasing its Model 3300 frequency counter in the *Communicator*. This incredibly accurate frequency counter is priced at only $129.00. If there is one thing newcomers need, it is antennas. We welcome Comet Antennas, and its outstanding line of products. And don't forget those dealer ads. If you are looking for a new piece of ham gear, check with *Communicator* advertisers first. These companies will "bend over backwards" to give you a deal you can brag about.

Membership Choice—The lady who does the membership data entry was certainly excited recently. She put a dozen or so letters and renewals on my desk with the comment, "Look at all the nice things they are saying about NARA." And nice they were. We may not be able to respond individually, or print all your letters, but everyone here appreciates your compliments, and it makes our day just a little bit nicer.

Membership is increasing significantly and our renewal rate is enviable. Even the League doubted our membership exceeded 7,000, or so they told the world. But NARA is the *only* national organization that understands the newcomer or knows how to speak their language. Our members are not all electronic professionals or engineers, but rather the average guy or gal who loves communication. Interestingly, a lot of members have not yet earned their license. We affectionately call them "wannabes."

> *But NARA is the only national organization that understands the newcomer or knows how to speak their language.*

With the continued support we enjoy, NARA should pass the 10,000 member mark this year. Have you sent in your application, or renewed your membership yet? Remember, if you let your membership lapse, you lose your low member number. Check your mailing label for the expiration date. A membership and subscription to our member publication, *The Amateur Radio Communicator*, is only $10.00 per year. That's less than a magazine subscription and, **in my opinion**, it is also a real bargain.

73 from Don, W6TNS ❑



Have We Got A Deal For You! Join NARA and Get a Free Book!

One of the goals at the National Amateur Radio Association is to encourage beginner proficiency and to help them advance to higher license classes. Life does not begin and end with a two-meter handheld radio. There is a whole world to explore on the high frequency Amateur bands (3-30 MHz) but to examine all the nooks and crannies, you need a General Class license.

But we have ulterior motives too! We'd like to encourage people, licensed or "wannabes" to join our organization. Our goal is to reach the 10,000 member level before the end of this year. With your help, we can do it too!

So here's the deal. If you join NARA for one year ($10.00), we'll give you a free copy of *The Ham Radio Handbook*. This book sold for $9.95 and sure, the questions have changed, but the theory has not. If you read this book, you will be able to pass the test—we guarantee it and you get it free with a one year membership in NARA! Naturally you also receive the number one beginners publication, the *Amateur Radio Communicator*.

What's that you say? You are already a Novice or Technician license? Then we have another deal just for you. If you join NARA for three years ($25.00- that's already discounted $5.00), we'll give you a free copy of *UPGRADE!* This book tells you all you need to know to pass the General Class test. It includes all the current questions and even provides the correct answers! A chapter is included to help you with learning the Morse code.

What could be easier? Call NARA today (1-800-GOT-2-HAM or, if you prefer, 1-800-468-2426) and tell them you want the BOOK DEAL that you read about in the *Communicator*. You'll receive all the benefits of being a NARA member, a membership number, a subscription to the *Communicator* AND a free book. Operators are standing by to take your order. Call today!

JUN'S ELECTRONICS

Out of State 1-800-882-1343

310-390-8003 FAX 310-390-4393

HOURS M-F 9:00 - 6:00 SAT 9:00 - 5:00 ESPANOL & PORTUGUESE

5563 SEPULVEDA BLVD., CULVER CITY, CA 90230

About 2 1/2 miles from LAX-North on I-405

HOLIDAY COUPON SPECIALS!

ICOM



HF Equipment	List	Jun's
IC-781 Super Deluxe HF Rig	6932.00	Call $
IC-765 New	2913.00	Call $
IC-737 New HF	1652.00	Call $
IC-735 Gen Cvg Xcvr	1239.00	Call $
IC-728 New All-Band HF	1105.00	Call $
IC-729 All-Band HF Plus 6 Meters	1492.00	Call $
IC-2KL 500W Amp	2260.00	Call $
IC-4KL 1kW Amp	7865.00	Call $
Receivers		Call $
IC-R9000 100kHz to 1999.8 MHz	6265.00	
IC-R7100 25 MHz - 2 GHz	1585.00	Call $
IC-R71A 100 kHz - 30 MHz Rcvr	1279.00	Call $
IC-R1 100 kHz - 1300 MHz	567.00	Call $
IC-R72 30 kHz - 30 Mhz	1145.00	Call $
IC-R100 100 kHz - 1856 MHz Rcvr	772.00	Call $
VHF		Call $
IC2iA 2 Meter HT	372.00	
IC-P2AT New 2 Meter HT	399.00	Call $
IC-2GAT New 7W HT	425.00	Call $
IC-2SAT Micro Sized HT	372.00	Call $
IC-2SRA 2M HT/Scanner	599.00	Call $
IC-229A/H 25/50W 2 Meter Mobile	452/465	Call $
IC-901 New Remote Mount Mobile	465.00	Call $
UHF		Call $
IC-4iA 440 MHz HT	452.00	
IC-P4AT New 70cm HT	492.00	Call $
IC-4SRA 70cm w/Scanner HT	612.00	Call $
IC-W2A 2M/70cm New HT	599.00	Call $
IC-W21ATNew Dual Band HT	625.00	Call $
IC-V21AT New 2M/220 Dual-Band HT	783.00	Call $
IC-24AT New 2M/440 Mini HT	465.00	Call $
IC-Δ1A 2M 440 1.2 GHz HT	1199.00	Call $
IC-2330 2M/220 Mobile	865.00	Call $
IC-2410H 2M/70cm Mobile	865.00	Call $
220 MHz		
IC-3SAT Micro Sized HT	385.00	Call $
IC-P3AT Mini FM HT	452.00	Call $
1.2 GHz		
IC-X2A 440 MHz/1.2 GHz HT	772.00	Call $
IC-12GAT Super HT	505.00	Call $

KENWOOD



HF Equipment	SAVE	List	Jun's
TS-950SDX New Digital Processor HF	$100	4799.95	Call $
TS-850S/AT New All Mode All Band	$50	2149.95	Call $
TS-850S New All Mode All Band		1949.95	Call $
TS-450S/AT New HF Xcvr	$50	1639.95	Call $
TS-450S New HF Xcvr	$50	1439.95	Call $
TS-140S Gen Cvg Xcvr		1079.95	Call $
TS-690S HF Plus 6M Xcvr		1699.95	Call $
TS-50S New HF Moible	$30	1279.95	Call $
TL-922A HF Amplifier		2099.95	Call $
Receivers			
R-5000 100 kHz - 30 MHz		1179.95	Call $
R-2000 150 kHz - 30 MHz	$15	849.95	Call $
VHF			
TH-22AT New 2 Meter HT		349.95	Call $
TH-28A New 2 Meter HT	$20	399.95	Call $
TH-78A New 2M/70cm HT	$20	449.95	Call $
TM-742A 2M/440 Mobile	$30	929.95	Call $
TM-641A 2M/220 Triple Receiver		929.95	Call $
TM-241A 50W Mobile FM	$20	459.95	Call $
TR-751A All Mode Mobile 25W		769.95	Call $
UHF			
TH-42AT New 70cm HT		349.95	Call $
TH-48A New 70cm HT		449.95	Call $
TM-441A Compact 35W Mobile		529.95	Call $
TM-541A Compact 1.2 GHz Mobile		649.95	Call $
TM-941A 2M/440/1.2 GHz		N/A	Call $
TM-732A 2M/440 Mobile	$30	769.95	Call $
TM-942A 2M/440 MHz 1200 MHz		1279.95	Call $
220 MHz			
TM-331A Compact Mobile		519.95	Call $

YAESU



HF Equipment	SAVE	List	Jun's
FT-1000D Top Performer	$100	4919.00	Call $
FT-990 All Mode New	$50	2579.00	Call $
FT-747 GX Economical Performer	$35	909.00	Call $
FT-890 HF Base w/.1-30 MHz Rec	$35	1439.00	Call $
FT-767GX Band New	$35	2299.00	Call $
FL-7000 15M-160M Solid State Amp		2459.00	Call $
Receivers			
FRG-100B New Mini Receiver		669.00	Call $
VHF			
FT-416/25B New 2 Meter HT	$15	415.00	Call $
FT-411 New 2M Loaded HT	$15	369.00	Call $
FT-26 Mini 2 Meter HT		309.00	Call $
FT-23 R/17 Mini HT		299.00	Call $
FT-2400 50 Watt Mobile	$15	439.00	Call $
FT-290R/690R-6M All Mode Portable		699.00	Call $
UHF			
FT-816/25 New 440 MHz HT		469.00	Call $
FT-76 Mini 440 MHz HT		329.00	Call $
FT-815 70cm HT		N/A	Call $
FT-911 Compact 1.2 GHz HT		529.00	Call $
FT-790 R/II 70cm/25W Mobile		819.00	Call $
FT-912 1.2GHz 10W Mobile		709.00	Call $
VHF/UHF Full Duplex			
FT-736R New All Mode 2M/70cm	$35	2149.00	Call $
Dual Bander			
FT-470 Compact 2M/70cm HT	$25	509.00	Call $
FT-530 2M/70cm HT	$25	569.00	Call $
FT-5100 Ultra Compact 2M/440 Mobile	$25	749.00	Call $
FT-5200 Ultra Compact 2M/440 Mobile	$25	789.00	Call $
FT-6200 Ultra Compact 440/1.2 GHz Mobile	$25	879.00	Call $
Repeaters			
FTR-2410 2M Repeaters		1247.00	Call $
FTR-5410 70cm Repeaters		1247.00	Call $
Rotators			Call $
G-800SDX Med/Hvy Duty 20 Sq Ft	$25	439.00	Call $
G1000SDX Heavy Duty 22 Sq Ft	$25	539.00	Call $

STANDARD



C5718DA New Dual Band Mobile



C528A 2 Meter/440 MHz Handheld

CCR708 Communications Test Receiver With Special Display Scope



C168A 2M, Mini HT
C188A 2M, Mini Deluxe HT
C228A 2M/220 HT
C558A 2M/440 HT
C288A 220 MHz HT
C468A 440 MHz, Mini HT
C628A 440/1.2 GHz, HT
C5608 DA 2M/440 Mobile

COMET

NEW!

B-Series Mobile Dual Band Antennas

- Black-Anodized
- Light Weight
- Cellular Appearance

Choose either PL-259 or NMO style mounts!



JUN'S BARGAIN BOX

ICOM	SALE	LIST
IC-901 2/70cm Moblie	$799.95	$1119.95
IC-UX39A 220 Module	$199.95	$517.95
IC-W2A 2 meter HT	$399.95	$599.95
IC-2GAT 7w 2 mtr. HT	$289.95	$429.95
IC-02AT 5w 2 mtr. HT	$269.95	$399.95
IC-03AT 220 Handheld	$269.95	$399.95
IC-4SRA 440/Scanner	$479.95	$612.95
KENWOOD		
TL-922A 2K Amplifier	CALL	
YAESU	**SALE**	**LIST**
FT-416 2 meter HT	$289.95	$419.95

NARA Is The *Only* National Organization Exclusively Devoted to Novice and Technician Class Amateurs!

Your First Hamfest, Your First Radio, What To Choose

by Kevin Karamanos, WD6DIH

EACH MONTH more and more new people join the growing ranks of Amateur Radio operators. After receiving their new license, the same first question always comes up—"What radio should I buy?" Handheld, mobile or base station.... HF, Two meter or dual band? With so many choices, let's try to sort these out. In most areas of the U.S., there is at least one large Hamfest each year. At these events you can meet with various manufacturers for demonstrations on the latest models. Free seminars about radio, antennas and installations are also available at these hamfests. Now let's try to answer the question "What radio should I buy?"



A handheld radio is great for "hamming," but it can also be a lifesaver. For personal communications and safety, you can use it instead of a cellular phone and there is no charge, monthly or otherwise. (Photo courtesy of Yaesu, Inc.)

Most new Amateurs today receive the new Technician Class license which limits you to the VHF/UHF bands. Since most of the open repeaters in the U.S. are located in the 2-meter band (144-148 MHz) it's no secret that most will select a 2-meter or combination 2-meter/440 MHz dual-bander as their first radio. Many new purchases are based on what a friend recommends, but take a few minutes and decide what works best for you.

HANDHELDS

Quite often new hams write me letters and ask the same question, "Handheld or mobile?" I recommend to most new Amateurs to consider a handheld (HT) as their first choice since it can be used at home, car or even at work (only if the boss doesn't care). Small size allows more listening since you can carry it around all the time. Since most areas have repeaters, a lot of power is usually not needed. Handhelds usually put out two to five watts and can be attached to an external antenna on your car for better range.

MOBILES

Mobiles on the market today put out a hefty 50 watts and have better range, but are not as convenient as a small handheld that can be carried on your belt or in a purse. A mobile would be a good choice if you spend a lot of hours in your car commuting each week.

TWO METERS OR DUAL BAND

Two-meter handhelds and mobiles are the most popular choices since they are the least expensive. But during the last few years more people are switching to dual banders as their first radio since these models usually have the most features. The typical dual-band handheld is only $40-80 more than a single band 2-meter HT. Dual-band mobiles are usually an extra $200 or more.

CHOICES... CHOICES... CHOICES

There are a lot of choices today

when looking for a radio. First select a radio that looks and feels good in your hand. Make sure it has a large back-lit keypad, easy-to-use knobs, and controls. Handheld or mobile, whatever you select, take a few minutes at home to get familiar with your new radio.

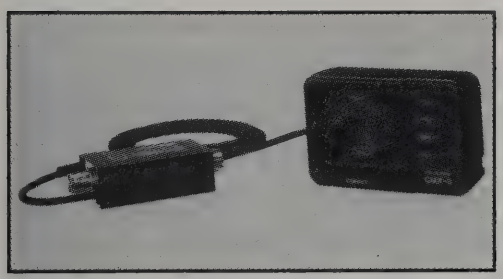
73 de Kevin, WD6DIH ❑

Kevin Karamanos, WD6DIH, is the National Sales Manager, Yaesu, USA, 17210 Edwards Rd., Cerritos, CA 90701

NEW PRODUCT ANNOUNCEMENTS

There is no more informative Standing Wave Ratio (SWR) indicator than a cross needle device. Rather than switching a single meter from forward to reverse, cross needle devices, such as CMX series from COMET, tell you at a glance what's going on.

Power measurement levels are switch selectable and there is even a fourth position for accurately measuring DC voltage from the power supply or vehicle battery. The meter is lighted and features a color scale for easy reading.



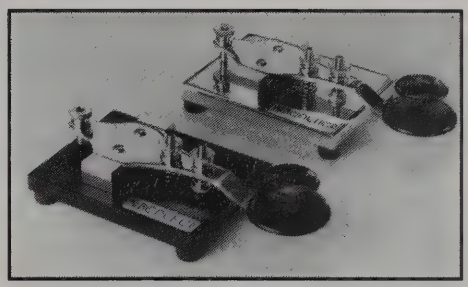
The CMX series meters are specifically designed for mobile operation with a remote head feature. The indicator can be mounted "up front" but the sensing head can be installed right at the base of the antenna where it belongs. For those of you with long cars, an optional 10-foot extension (making a total of 16 feet) is also available.

COMET is taking the Amateur Radio world by storm and you will find these new cross needle SWR meters at virtually all ham radio stores.

BENCHER HAND KEYS

Even with the advent of a no-code ham license, CW is even more popular today than ever. Many hams still use hand keys and reject those "new-fangled" devices like iambic paddles and computers.

Bencher, Inc., of Wood Dale, Illinois, has introduced a brand new design key which uses modern material and manufacturing techniques to meet traditional needs. For example, oil impregnated sintered bearings are used for the pivot points and stainless steel adjustment screws are used throughout. A complete range of locking adjustments of all movements and tensioning is provided.



Bencher has departed from its traditional practice of using the prefixes of rare countries as part of its model numbers. The keys shown in the accompanying photo have the RJ designation in honor of silent key Jim Rafferty, N6RJ, who was a close friend and once fellow co-worker of Bencher management.

The keys (RJ-1 and RJ-2) are available in limited quantities from most Amateur Radio dealers.

MAKE LEARNING FUN with the CODEKEY 1000 Code Practice Oscillator



—Compact and Easy to carry
—Operates on 9V battery included
—Adjustable Volume
—Durable Metal Case
—Variable Sidetone

$19.95 + $3.00 POSTAGE

TO ORDER —CALL— (718) 983-1416

Media Mentors inc.

P.O. Box 131646
STATEN ISLAND
N.Y. 10313–0006

BROWNVILLE SALES CO., INC.

Route 2, Box 104, Stanley, WI 54768 • 715-644-2112(Voice)/715-644-2621 (FAX)

SAVE on all ALINCO Radios

DR-119T High-Power 2M Mobile...
ONLY $349.95
DJ-580T Dual-Band HT...
ONLY $399.95

...And SAVE even more on these ALINCO Close-Outs

DJ-560T/A 2M/70cm Twin-Band Mobile Close-Out Priced at **$299.00**
DR-592T 2M/70cm Twin-Band Mobile (590 Upgrade) Close-Out Priced at **$499.00**
DJ-162TD SM FM HT (Dry Cell) Close-Out Priced at **$199.00**
Ni-Cad Battery and Charger Close-Out Priced at **$35.00** *with radio purchase*

Stamps—Flyers

ARRL, NARA, Artsci, etc. books, video/audio/computer tapes at a discount!

1993 ARRL "Now You're Talking" for no-code license $15.00 • 9 dB Gain 2M Base Antenna $32.00

Saving you money at BROWNVILLE SALES CO., INC. . . . Your Discount Ham Source

Welcome To The Clubs!

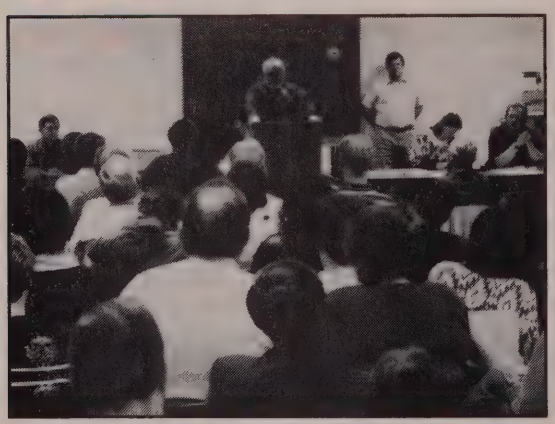
by Matt J. McCullar, KJ5BA

Amateur Radio Clubs offer hams a chance to share information, equipment and new ideas.

AMATEUR RADIO CLUBS have been around almost as long as the hobby itself. Hams all over the world gather together periodically for "eyeball" QSOs, to meet and share information, and to have fun. Clubs vary in size and organization, but they all have one thing in common: to have fun sharing ham radio.

As of 1990 there were over 2,000 Amateur Radio clubs (ARCs) in the U.S. that held their own call signs. No one really knows how many more there are without calls, because a club can have several hundred members or only two. Some clubs exist only during Field Day, while others remain active every day of the year. Finding out what your local clubs are like is part of the flavor and fun of our hobby.

Ham clubs flourish in every state. Almost every country in the world that allows Amateur Radio has at least one ham club. We can't begin to list all the ARCs in existence, but we can talk about a few so you'll find out what clubs are like.



Hams crowd together in rapt fascination at a meeting of the Arlington ARC, Arlington, Texas.

What Do Clubs Do?—ARCs offer hams a chance to share information, equipment and new ideas. After meeting several other hams through the local repeater, visiting a club meeting lets you get to know the faces behind the voices. When severe weather strikes, ARCs are often the first to establish reliable communications links for the authorities. Public events such as bicycle races, parades and marathons enjoy free communication because of ham clubs. Clubs compete with each other to find hidden transmitters in city-wide foxhunts. Some ARCs even launch weather balloons with radios aboard. Why not join the fun?

In the Beginning—The oldest ham club in America that is still active is the Harvard Wireless Club, W1AF. It began at Harvard in 1909.

Ham clubs got started because, like all hobbies, it is fun to share both equipment and information. As soon as one ham discovered a new DX country on the air, he'd run and tell all his buddies about it. But the primary reason ARC's began was economics. Individually, hams may not be able to afford all the gear they want. By forming a club and spreading the cost, hams share the equipment and enjoy working new bands they couldn't work before. To coin a phrase, "Many hams make light work."

Where Do I Look for Clubs?—Amateur Radio clubs are popular on many college campuses. One reason is that the stations offer visiting students from other countries an inexpensive way of talking with friends and family back home. (Remember, you do not need to be an American citizen to hold a U.S. Amateur Radio license.) And it offers students a means of communicating with each other, talking about their studies and other mutual interests.

Several large corporations offer ARC's run by and for their employees. In many cases, these clubs even

have their own buildings in which to keep the equipment and give the members a place to meet. Whether or not you must be a company employee to join is up to each club. Within a technological firm it is very easy to exchange information on how to become a ham and how to join up. Some clubs that fall in this category are Grumman ARC (WA2LQO), Ampex Employees ARC (K6QEZ), Walt Disney World ARC (WA4ABQ), The Pentagon ARC (K4AF), United States Senate ARC (W3USS), Fermilab ARC (WB9IKJ), McDonnell Douglas ARC (WA0CGV), Voice of America ARC (K3VOA), Boeing ARC (K7NWS), TWA Employees Amateur Radio Society (WA0QFJ), Johnson Space Center ARC (W5RRR), and Jet Propulsion Laboratory ARC (W6VIO). Some companies are so large that they offer ARCs in several cities: IBM, RCA, Exxon, 3M, Lockheed, General Dynamics, Kodak, and the American Red Cross are just a few.

In rural areas, the lack of a major city is no reason not to have a club. Dozens of ARCs organize on a county-wide basis, often including the name of the county or parish with the name of the club. There are clubs in high schools, hospitals, fire stations, county seats and churches. Ask around and you might be surprised where your local ARC is located!

Repeaters, Repeaters, Repeaters!—Often, Amateur Radio clubs own and operate their own repeaters. Club dues defray the costs of electricity and maintenance. Usually, use of such repeaters is available to everyone. But some ARC's desire to keep access strictly within their membership, so a "password" in the form of subaudible tones is required. Other clubs welcome general repeater use whether you're a member or not, but certain privileges—such as the phone patch, time-of-day announcement, playback of special messages, etc.—are off-limits to non-members (yet another incentive to join up!).

"I Want To Be a Ham..."—Most clubs offer ham license classes for anyone interested in becoming a ham or upgrading. With classes there are also exams. Gone are the days when hopefuls had to drive throughout the night to some gargantuan Federal building to take a test administered by the FCC and not know for weeks whether you passed or failed. Today an ARC in your own neighborhood can give the exam, and you find out immediately how well you did.

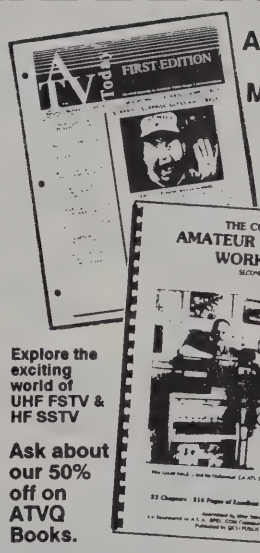
Hello, MARS!—There have even been Amateur Radio clubs in space! Your editor, Don Stoner (W6TNS), was one of the ramrods behind OSCAR in 1961—the first satellite built by and for hams; it was literally built in a garage by a group of dedicated Amateurs meeting regularly. Almost every Space Shuttle and MIR flight for the past several years has included at least one ham on board. Many hams still remember STS-51, the flight of Space Shuttle Atlantis in April, 1991—all five astronauts on board carried their ham licenses with them. Another club, WA3NAN, the Goddard ARC in Virginia, retransmits Space Shuttle/Mission Control audio on the Amateur Radio HF bands when a flight is in progress. If you listen to astronaut conversations on these bands and tell WA3NAN about it, they will send you a nice QSL card.

We Want Our Identity—In 1978 the FCC stopped issuing new callsigns for club stations, but continued to renew them. Since that time, new clubs have had to use the callsign of the club trustee—a member whose callsign is used for identifying the club station and the club repeaters. But so many hams want their clubs to have their own callsigns that the FCC is relaxing the rules. And very soon, if your club qualifies, it can proudly transmit its own callsign. Stay tuned.

What Are ARCs Like?- The variety in which clubs operate is as wide as the ocean. Some clubs meet regularly in the same place, others take whatever they can get whenever they feel like it. Ham clubs come and go; some start and disappear on a weekly basis, while some remain strong for decades. During meetings, some clubs strictly follow Roberts' Rules of Order; others resemble Free Beer Night at the ballpark. It pays to shop around visiting several clubs until you find one you like. You might even want to join more than one!

An ARC meeting contains hams showing off their latest home-built equipment and QSL cards, committees drawing up plans for participating in upcoming on-the-air contests, Elmers teaching a new group of hams the basics of how antennas work, and someone dragging in a broken rig. Everyone flips through the latest edition of the club newsletter and munches on a few more refreshments. Then they see you walking in through the door, and you are welcomed with, "Welcome to the club!"

73 de Matt J. McCullar, KJ5BA ❑



ATTENTION NARA MEMBERS!

TWO NEW AMATEUR TV PUBLICATIONS

Explore the exciting world of UHF FSTV & HF SSTV

Ask about our 50% off on ATVQ Books.

FCC Amateur Radio NOVICES can MONITOR Amateur TV signals. TECHNICIAN and above, can OPERATE! Imagine building up your very own low-power, TV station. Small size antennas, Color Cameras, Space Shuttle & High-Altitude Balloon watching, even DX! GET INFORMED and HEAR THE TRUTH with a subscription to the *AMATEUR TV TODAY!* Newsletter. Mailed monthly, 12-16 pages, 10 issues per year. $18.50 USA. FREE national distribution to legitimate ATV Clubs (signed performance contract required) . Want the BEST ATV book ever published? Send $18.95 plus $1.50 p/h for *THE COMPLETE AMATEUR TV WORKBOOK* 2nd edition. 23 Chapters and 216 pages. No reprints, lifted articles or self-hype. 12 years in the business. Published by WB0QCD.

QCD PUBLICATIONS & ANT Mfg.
1492 Highway 30
Clarence, IA 52216-9335

Hints And Tips On Soldering

by D-I-Y Radio

THERE IS ONLY one way to learn how to solder and that is by practice. Failures in "home constructed" projects are caused, most often, by poor soldering, yet it is a skill which can be very easily learned.

Solder is a funny metal; when heated it will become very much like plastic (at lower temperatures). It can be spread or piled up rather like butter, but if it is made just a bit hotter, it flows very freely. This is what must happen when a soldered joint is being made. Solder for use in electronic circuits is made from about 60 percent tin and 40 percent lead and has one or more cores, containing rosin, running through the complete length. When the solder is heated the rosin melts and keeps the surfaces to be soldered clean.

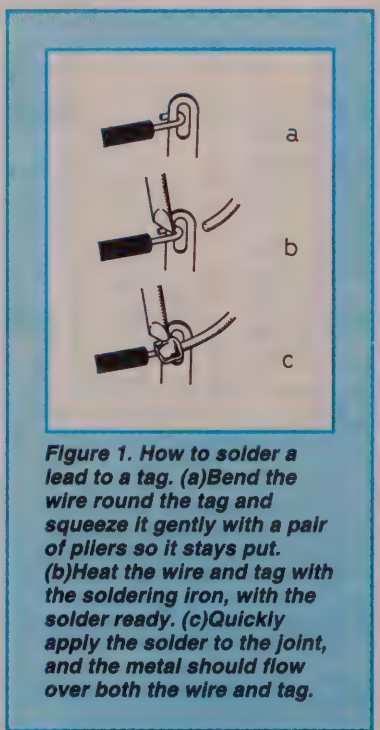


Figure 1. How to solder a lead to a tag. (a)Bend the wire round the tag and squeeze it gently with a pair of pliers so it stays put. (b)Heat the wire and tag with the soldering iron, with the solder ready. (c)Quickly apply the solder to the joint, and the metal should flow over both the wire and tag.

Now here are the materials you will need: a small soldering iron, a suitable stand for the iron, a small damp sponge if there isn't one with the stand and some resin cored solder. The easiest to use is very thin—#22 SWG (Standard Wire Gauge)—and costs about 50 cents for 10 meters, which will last quite a long time.

Now practice a few soldered joints. DON'T attempt a project until you are sure that you can make good soldered joints every time. You will recognize a good joint—the solder will be bright and shiny and you should be able to see the outline of the wire under the solder. If the solder is dull grey, the wire probably moved before the solder set. If it looks like a miniature mountain range, the solder didn't get hot enough. The secret is to use the soldering iron to get everything to the temperature at which the solder flows easily. The tip of the iron must touch both parts and the solder at the same time!

To practice, you will need a couple of metal tags as in Figure 1 (or a piece of Veroboard) and a length of copper wire. Switch on the iron and when the tip is hot, touch the tip with the resin cored solder and wipe it off on the damp sponge. Now hold the iron so that the bit is touching the wire and the top of the tag, then touch both with the solder at the same time. The solder will melt almost immediately. It should take less than two seconds for this to happen. If after five seconds it hasn't worked, remove the iron and allow the board to cool

Let's Talk Radio Network

SPACENET 3
CHANNEL 21
5.8 WIDE
BAND AUDIO

- General Interest & Tech Talk
- Live Call-in Programs
- Programming 7 Days a Week

Don't miss...
"This Week In Amateur Radio"
Saturdays 5–6 p.m. EST
Suitable For Direct Air Over Your Repeater!

AIRTIME AVAILABLE!
LTRN, Box 1555, Oak Park, IL 60304-0555
708-383-0778



Soldering kits, such as this one by ANTEX, are available.

down, then try again. If you are using Veroboard and the solder flows along the track or even worse, fills the gap between tracks, you are using too much solder. You must avoid this because in an actual circuit, the solder would connect the tracks and the circuit would not work. Repeat the exercise as many times as you can, using a fresh position on the tag each time. You will soon find that the joints begin to look good.

If you get too much solder around a joint, touch it with the hot iron, wipe the bit on the sponge and keep repeating (allowing time for the board to cool) until the amount of solder is reduced. Later, if you do a lot of work on Veroboard and printed circuit boards (PCB), you will find it worthwhile getting a 'solder sucker' which is a kind of pump which sucks up the solder melted by the soldering iron. Keep practicing and aim for that one and a half second joint.

Soldering Dos and Don'ts

A HOT SOLDERING IRON, INCORRECTLY USED, IS DANGEROUS!

DON'T burn yourself—never touch the bit and DO put the iron in a position where it will not be touched by accident. DO make sure that younger brothers and sisters can't get their fingers on it!

DON'T burn your clothes—wear old ones and better still, an apron or overalls.

DON'T burn the furniture. DO cover your work surface with an odd piece of hardboard or similar.

DON'T leave a hot iron unattended, not even for a very short time; always switch off before you leave it.

DON'T lay the iron on your work surface. DO use the stand—this has the advantage of making the tip of your iron (and the iron) last longer.

DO switch off if there is to be more than five minutes between making one joint and the next (unless you are lucky enough to have a temperature controlled type of iron). This will also make the iron last longer.

DON'T shake the iron to remove the solder which collects on the bit. You never know where the hot solder is going to end up—it could damage your eyes or someone else's.

DO wipe the tip on the damp sponge to remove the excess solder.

DON'T let the work get too hot—remember, a joint should be complete in less than two seconds. Allow at least ten seconds for the board to cool before you touch it.

DON'T keep the tip of the iron on the work longer than five seconds, even if the solder does not melt.

The National Amateur Radio Association has been granted permission to reproduce material from "*D-I-Y Radio*," an excellent publication from the Radio Society of Great Britian. If you see their logo, shown below, it means the material first appeared in "*D-I-Y Radio*" and is reproduced with permission. For more information on the many excellent RSGB publications, write Radio Society of Great Britian, Lambda House, Cranborne Road, Potters Bar, Herts. EN6 3JE ENGLAND

D-i-Y RADIO



AMATEUR RADIO AWARD OF EXCELLENCE NARA

The first recipient of the NARA "Award of Amateur Radio Excellence" was Alinco, Inc., for its DJ-180 handheld two-meter transceiver. It is proudly displayed by Greg Pearson, N6ZSW, and Mark Morisato, KC6OCX, Vice President of Alinco U.S.A.

News About RS-10/11, RS-12/13 And MIR

by AMSAT NEWS

THE RUSSIAN RS-1 satellite, launched in October 1978 is now 15 years old, but still giving signals. Its battery went open circuit soon after launch, but the spacecraft's 29.401 MHz beacon can still be heard sending "55" when the solar cells are in full sunlight. Sadly, the power is insufficient to provide that needed to operate the Mode-A transponder.

Nico Janssen (PA0DLO) recently visited the Radio Sputnik ground command station in Russia, meeting Leonid Labutin (UA3CR), his son Evgeny (RA3APR), Sergei Samburov (RV3DR), and the operators of RS3A. They passed on the following information on the satellites.

For a number of technical reasons, command problems, interference and the like, the radio Amateur satellite systems RS 10/11 and RS 12/13 cannot presently be switched to modes other than those now in use. Consequently, for the immediate future RS-10 may be expected to continue to operate in Mode-A (2M uplink and 10M downlink) and RS-12 in Mode-K (15M uplink and 10M downlink). RS-11 and RS-13 will remain switched off and in "standby" mode. The new Russian Amateur satellite system RS-15 is now complete and ready for launch. It will be built into another Cosmos navigation satellite, similar to the navigation satellite Cosmos-2123 that houses RS-12/13. It is not known exactly when the launch of the satellite will occur, but as soon as an older satellite in this series of navigation satellites reaches the end of its operational life, the new satellite, with RS-15, will be launched.

There are now no plans for any further RS satellites after RS-15, and the only project that the RS team is involved in is the voice experiment satellite VOXSAT. In this project, the Russian team will work together with AMSAT-LU to build this Amateur satellite system, also to be built into a Russian satellite.

News on MIR

The present crew members of MIR, Vasily Tsibliyev and Aleksander Serebrov, do not have personal Amateur Radio licenses, thus they do not have their own call signs while manning MIR. However, they do have permission to use the Amateur Radio station in MIR, using the general MIR call sign R0MIR for speech and R0MIR-1 for the onboard packet radio Personal Message System (PMS).

Since all Russian cosmonauts will now be given Amateur Radio training by Sergei (RV3DR) as a fixed part of their cosmonaut training, we may confidently expect the Amateur Radio station in MIR to be active continuously as long as cosmonauts are on board the space station. Future trained cosmonauts include Valeri Poliakov (U3MIR), Viktor Afanasyev (U9MIR) and Yuri Usachov (R3MIR).

Sergei (RV3DR) is only involved in training the Russian cosmonauts, so he recommends that western Amateur Radio organizations take care of the Amateur Radio training of the coming visiting cosmonauts preparing for a stay in MIR. Also, to make the Amateur Radio activity of a western cosmonaut in MIR as effective as possible, Sergei suggests to have the cosmonaut carry out a specific Amateur experiment or take some new equipment to MIR, such as the microphone with voice memory taken by the German cosmonaut Flade.

Courtesy of AMSAT NEWS SERVICE ❑

FREE
Issue of HamAdventureS Newsletter!
A newsletter dedicated to letting amateur radio guys and gals share their radio experiences. Send for your free issue today!
For information about our complete line of products and sample QSL cards, send $1.00 to: (The greenstamp is refundable if you order)
Rusprint
26037 W. 220th Terr.-1NA
Spring Hill, KS 66083
913 686 5116

You Can Hear DOVE (Oscar 17) With Your Two-Meter Handheld Radio

by NARA Staff

DOVE (DIGITAL Orbiting Voice Encoder) is currently up and running on 2M and is sending normal ASCII telemetry and short text bulletins on 145.825 MHz. DOVE, the idea of a Brazilian ham, Junior de Castro, PY2BJO, of BRAMSAT, the Brazilian Amateur Satellite organization. Dove was designed as an educational tool to introduce school children and newcomers to Amateur satellites. The computer "crashed" shortly after launch and DOVE has been silent, or simply sending telemetry information since that time.

About the revitalized DOVE, de Castro says, "After a long time, Dove is back again on two meters at 145.825 MHz. This project was created to provide an extremely simple way for those not familar with satellite communications, especially thos new to Amateur Radio, to take part in this exciting phase of our hobby. Dove is finally beginning to live up to its original promise.

After its rebirth, we at BRAMSAT are receiving many E-mail messages and letters. Up to now they total 328, from 45 countries. We are happy with this response, but we will be even happier when DOVE again becomes the popular satellite that we always knew it could be."

Saving DOVE was not an easy task. Telemetry information indicated the spacecraft was basically healthy. The DOVE Recovery Team of Bob Diersing (N5HAD), Bill McCaa (K0RZ), and Jim White (WD0E), have been working very intensively to create and test new software that allowed automated software loading via two meters in a half-duplex mode. This replaces the "ear-ack on S-Band" method N4HY had used in the past, that was so difficult as to be a barrier to recovery.

WD0E and the DOVE Recovery Team would like to receive telemetry reports on the newly reactivated satellite. Please send them to vk7zbx@KO-23, @AO-16 or on INTERNET to vk7zbx@amsat.org or

(Continued on page 21)

Join the FUN on the
SATELLITES
YES! Anyone with a Technician Class license or higher can work the



via the
OSCARs
Learn how: Join AMSAT today!
For a limited time, new members receive:
ORBITs - Tracking software for IBM compatible computers by WØSL
How to Use the Amateur Satellites - A great book by KB1SF
write or call
AMSAT
PO Box 27 Washington, DC 20044
301-589-6062

LETTERS

Dear Don:

I want to report an unusual ham operator experience. I recently started skydiving as a sport which, I would like to add, is a wonderful experience. On September 12, 1993, on my second jump (with the permission of the instructor), I held a QSO with my wife, Veronica (KC5CXB) from the parachute to the ground. I was dropped by a Cessna 182 at 10,000 feet over Pensacola Beach. We talked with hand transceivers on the 70cm band and communications was very good. I wonder if any ham radio contacts, made in this manner, have been reported before. When I started Amateur Radio operation a few years ago, I knew it could be practiced in a variety of ways, but never imagined this use!

73, Eddy Randrup, N5EGI

Congratulations on this unique contact, Ed. If it had been me, all my wife would have heard is screaming and praying!- Ed

Dear Don:

The Challenger Junior High School Amateur Radio Club will operate its station, KI6YG, on January 28, 1994, to commemorate the eighth anniversary of the Challenger Space Shuttle tragedy. Operation will be between 1400Z-2400Z about 14.280, 21.280 and 28.380 on the 20-, 15-, and 10-meter bands, respectively. For a special commemorative QSL card, send your QSL and SASE to Challenger JHS ARC, 10810 Parkdale Avenue, San Diego, CA 92126 or to me at my callbook address.

73, Frank Forrester, KI6YG
Science and Technology Teacher

Dear Don:

I got my copy of *The Amateur Radio Communicator* in the mail a couple of days ago. On page 22, I was reading that Ted R. McElroy copied 75.2 WPM in July 1939. I wonder about this because I got my license in late 1934, and it seems to me I remember reading about his high speed code copying before I got my ticket. Maybe it was 1929? I could be wrong.

73, Orville Gulseth, W5PGG

McElroy was flogging away on a key long before he set the sending speed record, Orville. Maybe some of the old timers can clear this up - Ed.

Dear Don:

Just a few words about your QSL articles. In the March/April issue, the article did not cover "strike overs" on QSLs. I would strongly suggest that USA hams not send any cards out with a "strike over." Let's say a ham receives your card with a "strike over." Further, assume the ham needs your card for ARRL Century Club and he sends it to the League. There is a good chance the League will not give the ham credit for your card. It has happened. It is very important to send out legible cards that do not appear to be altered. Another thing, not all foreign countries have incoming QSL bureaus. The ARRL country list has coded all the foreign countries that have incoming QSL bureaus. For anyone who is chasing new countries, it is a good idea to have this information on hand. Finally, don't give up chasing a rare QSL. I contacted Marion Island, ZS6MI, in 1964 on 40-meter CW. Twenty years later, I received the QSL card!

73, K.C. Jones, W6OB

Dear Don:

I am a Volunteer Examiner, Registered Instructor and an Extra Class Operator. I would like to commend you on your excellent magazine. As an instructor, I use it in the class for many applications. It is easy to understand and the articles are fantastic. Although as an Instructor, I cannot "distribute" any material, I make certain that your publication is always on hand for the students to browse through during breaks, etc. Keep up the good work. You are truly a "voice" for the Novice and Technician Class hams.

73 Bob Janssen, KA5TTS

Aw, shucks, Bob. I'll bet you are just saying that to get your letter published in the Communicator. Seriously, all of us, who work very hard to produce the magazine sincerely appreciate your comments.

Dear Don:

I recently received a sample copy of the Amateur Radio Communicator. Although I hold an Amateur Extra Class license, and I am also a Life Member of the ARRL, I commend you on the efforts made in trying to bring new people into Amateur Radio. I have been licensed since 1954 and during that period I have operated CW approximately 90-95% of the time. Today, there are too many phases of Amateur Radio to put such an emphasis on the Morse code. The new "no code" license is achieving its original purpose of introducing new people, whether young, old, male or female to Amateur Radio. I feel with so many areas of the hobby to explore, those that want to operate CW will do so. We need more people in Amateur Radio to discourage loosing more of our operating frequencies. Keep up the good work and I wish you much success in the future.

73, Harold Schmidt, K2JYK

Thanks for those kind words, Harold. It helps make the hard work all worthwhile.

Join The Dialog!
Write to us at NARA
P.O. Box 201407 Arlington, TX 76006

ADVERTISER'S INDEX

Alinco Electronics, Inc. Cvr II
AMSAT 19
Brownville Sales Co. 13
Buckmaster Publishing 6
Doc's Communications 3
Hardin Electronics 5
Jun's Electronics 11
Kenwood USA Cvr IV
Let's Talk Radio Network 16
Media Mentors, Inc. 13
NCC Companies (Comet Antennas) . 7
OPCOELECTRONICS Cvr III
QCD 15
Rosewood 21
Rusprint 18



Competitor's Beware! Here's the Triple States Radio Amateur Club's (TSRAC) secret weapon to win the 1994 Field Day effort...it's their women operators. TSRAC used the 1993 Field Day as "training ground" to improve future club scores. Preparing to take over are: N8QFM, N8SAR, KB8MRW, N8LRR(standing) and N8TAK.

DOVE

(Continued from page 19)

to wd0e@amsat.org, or to the CompuServe address of 71477,546. The most recent version of TLMDCII (3-8-92) will decode and record DOVE telemetry very nicely. For more information about obtaining a copy of the TLMDC program, contact AMSAT-NA HQs at (301) 589-6062.

After the DOVE Recovery Team is sure the satellite is stable in this configuration and the RF transmitter power targets are established, the next step will be to load up through PHTX and test the voice module. Depending on the condition of the spacecraft and other issues, this could take several weeks.

You can easily hear DOVE with nothing more than a scanner or handheld two-meter radio. DOVE is in a sun-synchronous orbit, which means it comes over each day and night about noon and midnight local time. Simply set up your radio to monitor 145.825 MHz, and place it near an outside window. When DOVE passes over, you will hear the "bird" quite clearly.

If you would like more information on working the various Amateur Radio satellites, software programs to track them, or to join the organization responsible for orbiting many of the ham satellites, call AMSAT at (301) 589-6062.

73 de NARA Staff ❑

NEW HAMS-SWL'S-OLD TIMERS

TIME TO HIT THE BOOKS AND BARGAINS!

Rosewood Co. stocks over 200 titles from **ARRL**, **NARA**, **CQ**, **AMECO**, **W5YI** Group, Universal Radio, Callbook and many others. We have study guides, antenna books, callbooks, repeater directories, modification manuals, software and even video courses. Rosewood has it all!

FAST FREE Delivery

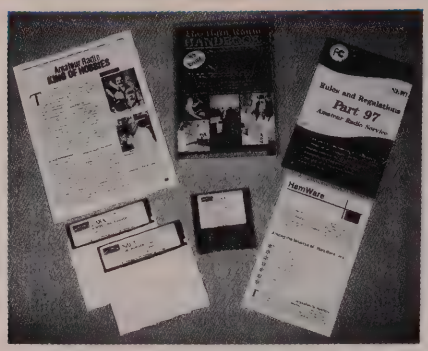
MasterCard VISA DISCOVER

ROSEWOOD

Rosewood Company
P.O. Box 229
Elko, SC 29826
(803) 266-4759 (For General Inquiries)

1-800-875-7762
CALL OUR ORDER LINE TODAY!
Ask for Kathleen, KB4HWC or Ray, WA4OMM, for same-day service.

AVAILABLE FROM NARA



Pass the New Codeless Technician Test!

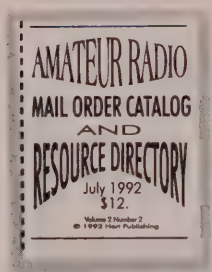
Everything you need to pass the new codeless Technician Class exam! The **NARA Codeless Technician Package** includes:

- *How To Earn Your No-Code Ham License*, the 200+page study guide that guarantees you'll pass the test or your money back!
- HamWare software for testing your knowledge
- FCC Amateur Rules and Regulations book
- Bonus Morse code training program (IBM) 0 to 25wpm
- Complete list of Contact Volunteer Examiners
- *King of Hobbies* publication, a special introduction to Amateur radio

The NARA Codeless Technician Package (IBM) is just $29.95 (3.00 S&H) #P110.

Having Trouble with Code?

The **Morse Academy,** IBM software, actually teaches all 43 required code characters and then steps you up through the Amateur Extra level using sophisticated computer aided instruction techniques. Adjustable tone, standard or Farnsworth spacing. Sends text or randomly generated characters—plus an on-disk manual! (5¼" disk) ***WAS*** **$14.95,** ***NOW ONLY*** **$9.95 ($1.50 S&H)** #S410.



Amateur Radio Mail Order Catalog And Resource Directory

Now bigger than ever! With **30 more pages, 30 new categories**, and over **150 more listings** it has never been a more valuable resource for your ham shack! You'll find everything from A to Z, including parts and equipment, kits and keyers, QSL cards, even personalized hats, mugs, and license plates. There's an extensive listing of radio clubs worldwide, international radio magazines, and over 100 free catalogs available just waiting to be requested!

Use it again and again as you reference products, clubs, catalogs, shareware and much, much more! The ***Amateur Radio Mail Order Catalog and Resource Directory*** **with 260 pages is only $14.95 ($3.00 S&H)** #B660.

HamWare™ Testing Software

The **HamWare,** IBM compatible (5¼" and 3½" disks) testing software, provides all the practice you need to get your first license or to upgrade. Drawings and diagrams appear automatically on screen along with the appropriate questions, and there's even a practice mode, complete with hints, answers and help screens. There's even a handy on-screen scientific calculator. Your choices are mouse or keyboard selectable. As a bonus, each disk includes a copy of **Morse** software for learning Morse code.

- HamWare Nov/Tech Classes w/Morse #S210
- HamWare General Class w/Morse #S211
- HamWare Advanced Class w/Morse #S212
- HamWare Extra Class w/Morse #S213

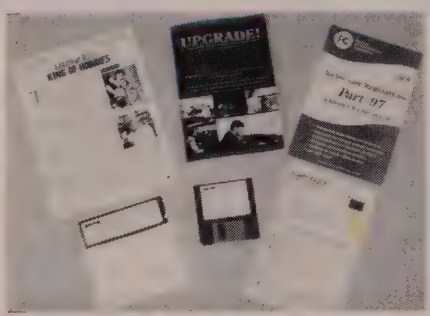
HamWare is available at Amateur Radio dealers or directly from NARA. License classes are sold individually. Each class is only **$14.95 ($2.00 S&H).**

NARA Amateur Training Package

Start with your Novice or no-code Technician license and go "all the way" to Extra class with this excellent IBM compatible training package that includes:

- HamWare Novice/Technician Classes w/Morse
- HamWare General Class w/Morse
- HamWare Advanced Class w/Morse
- HamWare Extra Class w/Morse
- 60-page *FCC Rules and Regulations, Part 97*
- *Amateur Radio—King of Hobbies*
- An extensive list of Contact Volunteer Examiners.

Save by ordering the **NARA Amateur Training Package.** This entire package (5¼" and 3½" disks) is only **$32.95 ($3.00 S&H)** #S220.



Upgrade to General Class with the NARA UPGRADE Package

NARA has put together all the essential tools you'll need to upgrade to General class. This value-packed offer includes:

- *UPGRADE! to General Class* by W6TNS
- HamWare General Class IBM (5¼" and 3½" disk) testing software w/Morse
- 60-page *FCC Rules and Regulations, Part 97*
- *Amateur Radio—King of Hobbies*
- An extensive list of Contact Volunteer Examiners

The **NARA Upgrade Package** is available at Amateur Radio equipment dealers or directly from NARA for only **$29.95 ($3.00 S&H)** #P240.

A FREE issue of *The Amateur Radio Communicator* will be mailed to you at a later date when you order any NARA product!



NEW!

Introduction to QRP!

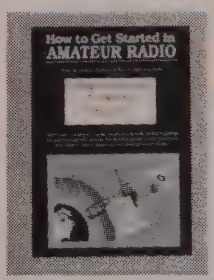
NARA does it again with its ***How To Get Started in QRP*** book. QRP (meaning low-power operation using five watts or less) offers a unique and exciting challenge for today's ham. Written by Dave Ingram, K4TWJ, "*QRP*" covers an overview of QRP, accessories, operating tips, power sources, homebrew, clubs, awards and more. With today's technology and equipment, working the world with QRP could be the ultimate challenge! ***How To Get Started in QRP*** is available at all major ham radio stores or directly from NARA for only **$9.95 ($2.00 S&H)** #B690.

MacHam™ Testing Software

MacHam is one of the most useful series of ham radio programs written for the "Mac." All required circuit diagrams are displayed with the question on the screen. If the test is printed, the diagrams are included.

The tests can be taken on screen, by element or by chapter, with options of immediate or end-test scoring. Printouts create exact VE style exams, with question pool numbers, correct and blank answer sheets.

- MacHam Nov/Tech #S310 **$39.95 ($2.00 S&H)**
- MacHam General #S311 **$29.95 ($2.00 S&H)**
- MacHam Advanced #S312 **$29.95 ($2.00 S&H)**
- MacHam Extra #S313 **$29.95 ($2.00 S&H)**



NEW!

How To Get Started In Amateur Radio

Learn things about your handheld radio that the instruction manual forgot to mention. Don Stoner's new information booklet, *Understanding Your Handheld Radio* (#B701), completes your knowledge of controls, switches, antennas, specifications and accessories.

Bill Pasrernak, WA6ITF, has written the second book in the 'getting started" series called *A Beginner's Guide to FM And Repeaters* (#B702). He fills in your knowledge on operating on repeaters, your first QSO, and so on. ***How To Get Started*** **booklets** are priced at **$3.95** from all major ham dealers or direct from NARA **($1.00 S&H).**

Order Today!

Learn the Code with these Outstanding Cassette Tapes!

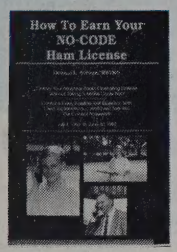
These cassette tapes will give you the practice you need to pass your code exams. Each set contains two cassette tapes. Each set sold separately.

- Novice/Technician Class 0 to 5wpm #T710.
- General Class 5 to 14wpm #T720.
- Extra Class 12 to 24wpm #T730.

Order today for only **$11.95 ($2.00 S&H).**

For The Fastest Service, Call NARA At 1-800-GOT-2-HAM (1-800-468-2426)

AVAILABLE FROM NARA



How To Earn Your No-Code Ham License

By Don Stoner, W6TNS, is the leading book for anyone wishing to earn the new code-free Tech license. Includes every question plus the multiple-choice answers.

How To Earn Your No-Code Ham License is the only test manual that includes simple and easy-to-understand theory along with many photos and illustrations.There are ten chapters covering each subelement. Sample tests are given at the end of every chapter with a list of correct answers at the back of the book.Guaranteed to provide all the information needed to get your ham radio license or your money will be refunded. ***How To Earn Your No-Code Ham License*** is only **$9.95 ($2.00 S&H)** #B610.

FCC Rules and Regulations

The FCC, Rules and Regulations Part 97, covers the guidelines and rules of the Amateur Radio service. This 60+ page book is an excellent reference for every class of license; a resource book no ham shack should be without! ***Rules and Regulations, Part 97, Amateur Radio Service*** is only **$4.95 ($1.00 S&H)** #B640.



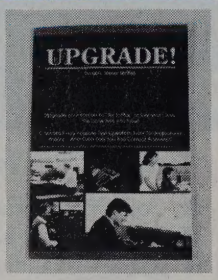
All About Ham Radio

This is the book that Don Stoner wishes he had written. Harry Helms, AA6FW, wrote this book in a manner that can be understood by everyone from young to old alike. Although not keyed directly to the question pools, it provides all the information you need to know to become a Technician Class Amateur.

Over 290 pages of jam-packed information including Hams And Their Radios, Customs, Habits And Other Good Stuff, Single Sideband, Ham Radio Meets the Personal Computer, Folklore, and much more.

For a book that covers so many different aspects of the Amateur radio hobby ***All About Ham Radio*** **is a steal at only $19.95 (3.00 S&H)** #B680.

Order Today!



UPGRADE! To General Class!

UPGRADE to General Class by Donald L. Stoner, W6TNS, shows "no-code" hams how easy it is to upgrade to the Tech-Plus or General Class license!

UPGRADE! has nine chapters covering each subelement of the General Class exam. All multiple-choice questions and answers for the General Class exam are included. Tips and special hints for learning the code and increasing your speed are also included!

UPGRADE! is available from Amateur Radio stores, or direct from NARA for **$9.95 ($2.00 S&H)** #B620.

Play It Up! With NARA's New Videotapes

Explore Amateur Radio through exciting videotapes! Directed by some of the best-known names in ham radio, these videotapes are the perfect addition to every ham's collection. Choose from the following:

Getting Started In Ham Radio. Covers the early stages of ham radio including station layouts, safety, choosing and setting up equipment and repeaters. By *CQ Videos*, **only $19.95 ($3.00 S&H).**

Getting Started On Amateur Satellites. A "how-to" guide for the newcomer wanting to work the world through Amateur satellites. Discusses equipment, DXing and more. By *CQ Videos*, **$19.95 ($3.00 S&H).**

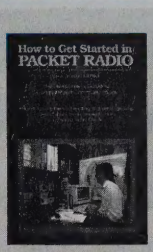
Getting Started in Packet Radio. A "how-to" guide to setting up a computer-to-computer station, getting on the air, QSOs, and operating packet effectively. By *CQ Videos*, **only $19.95 ($3.00 S&H).**

Getting Started in DXing. Successful DXers offer their tips on getting started, proper operating skills, snaring the rare ones, basic equipment and more. By *CQ Videos*, **only $19.95 ($3.00 S&H).**

Reading, 'Riting and Radio! Great for teachers and instructors, educator Carole Perry, WB2MGP, with her students and ham radio classes for children shows how beneficial and exciting ham radio is in school for teaching geography, world affairs, current events, math and more. **Only $19.95 ($3.00 S&H).**

CQ Field Day! Designed to help hams who want to set up their equipment in the great outdoors, this tape takes you to the award-winning 22A Field Day station. It shows you everything from setting up to packing up an outdoor radio station. **Only $19.95 ($3.00 S&H).**

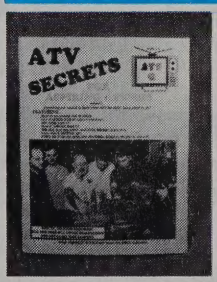
Ham Class. Well-known instructor, Gordon West, WB6NOA, helps prepare students and instructors to set up a ham class. The tape contains live classroom demonstrations and tips on setting up classes or training seminars. **Only $19.95 ($3.00 S&H).**



NEW!

Packet Radio For Beginners

NARA has done it again with ***How To Get Started In Packet Radio*** written by well-known author Dave Ingram, K4TWJ. This informative new book explains the practical side of packet radio in a simple-to-understand manner. It begins with a non-technical description of packet radio, followed by chapters including *Getting Started, Setting Up Your Station, Operating Packet to Networking* and *HF Operation.* There is even a *Packet Radio Equipment Survey* and an appendix that includes circuits for interfacing equipment! Get ***How To Get Started in Packet Radio*** **today for only $9.95 ($2.00 S&H).** #B670



ATV Secrets For Aspiring ATVers

ATV Secrets For Aspiring ATVers, written by Henry Ruh, KB9FO, contains everything you wanted to know about **Amateur Television (ATV)**. All ham licensees can participate in ATV—*even those with the new no-code license!* Amateur TV is fun and exciting. Take your own home video productions, make new friends and get more enjoyment from your video equipment. Hams should be *seen* as well as heard!

ATV Secrets is available through all major Amateur Radio equipment stores, or direct from NARA for only **$7.98 WAS $9.98 ($2.00 S&H)** #B630.

The FCC Question Pools—

Each booklet contains all the questions and answers for each license class. Does not contain explanations. Order your booklet by license class.

- Novice and Technician classes together (all the questions for the new code-free Technician class license) **$4.95 (S&H $1.00)** #B650.
- General Class **$3.00 (S&H $1.00)** #B651
- Advanced Class **$3.00 (S&H $1.00)** #B652
- Extra Class **$3.00 (S&H $1.00)** #B653.

A FREE issue of *The Amateur Radio Communicator* will be mailed to you at a later date when you order any NARA product!

For The Fastest Service, Call NARA At 1-800-GOT-2-HAM (1-800-468-2426)

Form of Payment MC___VISA____Check____

Please Print

Name _____

Call Sign (Optional) _____

Address _____

City _____

State _____ ZIP _____

Daytime Phone (_____) _____

MC/VISA _____

_____ Expires _____

Signature _____

National Amateur Radio Association
P.O. Box 201407
Arlington, TX 76006

Here's my order. **J/F**
Don't forget to mail my **FREE** issue of ***The Amateur Radio Communicator!***

Qty.	Item No.	Description	Price	S&H	Total Price
				Subtotal	
				Texas residents must add 7.75% tax	
				Total Enclosed	

Please make your check or money order made payable to: **National Amateur Radio Association**

NARA Is The *Only* National Organization

exclusively devoted to

Novice and Technician Class Amateurs!

Who Is The National Amateur Radio Association?

NARA is striving to publicize Amateur Radio to the general public, attract young people to the Amateur Radio Service, increase the stature and benefits of the Novice and Technician class license and save the various Amateur bands from confiscation by commercial interests.

Recently, Amateur Radio lost part of the 220-MHz band and, in some areas of the country, is in the process of *losing access* to another band (900 MHz).

We must get more people involved in the Amateur Radio Service so we can increase activity and retain our remaining Amateur bands.

NARA brings you an exciting future as an Amateur Radio operator!

Who Should Belong to the National Amateur Radio Association?

- Anyone interested in obtaining an Amateur Radio license
- New Amateur Radio operators of all classes
- Public and private school teachers who want to introduce their students to Amateur Radio
- Beginning Novice and Technician class Amateurs
- Elmers who want to assist beginners
- All Amateurs concerned about the future of the Amateur Radio Service

What Will You Gain when You Join NARA?

1. Knowledge to help you get the most from the Amateur Radio Service
2. You will insure a solid future for the Amateur Radio Service
3. You will be helping others become involved in Amateur Radio
4. Plus you receive our member journal, *The Amateur Radio Communicator!*

Join the National Amateur Radio Association and receive *The Amateur Radio Communicator!*

Here's What You'll Find in the *Communicator!*

- Colorful editorials by Don Stoner, W6TNS
- The electronic adventures of Dan and Burke
- Satellite communications
- Transmitter hunting
- Help passing your Novice or Tech exam
- Erecting your first antenna, propagation
- Types of Amateur Communication
- Pictures and news about other Novices and Technicians...The Future of Our Hobby
- Hot Tips—News you need as an Amateur
- Current information on the VE program
- Repercussions that regulation changes will have on the future of Amateur Radio

When you join NARA, your membership dollars will be used to ***further these goals***. Let's face it—with a membership cost of only $10.00 per year, ***you won't find a better value in Amateur Radio!!!*** Join today! It's easy. Just complete the subscription form below and mail your check or money order. For the fastest service, call 1-800-GOT-2-HAM(1-800-468-2426) with your Visa or MasterCard number.

Yes!

NARA
NATIONAL AMATEUR RADIO ASSOCIATION
P.O. Box 201407
Arlington, TX 76006

I want to join NARA and receive my bimonthly subscription to *The Amateur Radio Communicator.*

- ❑ One year for $10.00
- ❑ Two years for $18.00
- ❑ Three years for $25.00

(Please print ____ Form of Payment MC ___ VISA ___ Check____

Name _____ Call _____

Address _____

City _____

State _____ ZIP _____

MC\VISA _____ Expires _____

Signature _____

Please make your check or money order made payable to:
National Amateur Radio Association **J/F**

HOW DID I GET THIS MAGAZINE?

ONE OF THE WAYS WE CAN TELL THE WORLD ABOUT the goals and ambitions of the National Amateur Radio Association is to supply complimentary copies. We send about 10,000 pieces to newly licensed hams. This magazine is also mailed to a select list of people who might be interested in becoming Amateurs. We also send approximately 10,000 copies to NARA members and prominent people in Amateur Radio.

If your mailing label does not include a NARA membership number, this may be your last or only copy of *The Amateur Radio Communicator.* We would like to continue providing you with this informative publication, but we can only do so if you are a member of NARA. For those interested in becoming a ham, or who are newly licensed, a membership in NARA represents an outstanding bargain. A membership, which includes a subscription to *The Amateur Radio Communicator,* is only $10.00 per year.

Check the mailing label for your membership number. If you don't see one, look at the NARA advertisement and read the benefits of becoming a member of this fast-growing organization. We need your support and so does ham radio. Help us get it "going and growing!"

LIGHTS OUT!!

OPTOELECTRONICS turns out the lights on LED Counters...

...with the new 10 digit LCD MiniCounter.
More PERFORMANCE In a SMALLER package

- 1 MHz - 2.8GHz Frequency Range
- Direct Count Range From 1MHz to 250MHz with 1Hz/Sec high resolution display.
- Prescaled Range from 10MHz to 2.8GHz for virtually all two way communications
- Select up to 6 Gate/Measurement Periods
- 10MHz Industry Standard Time Base
- Ultra Compact – true pocket size
- Maximized sensitivity for picking up radio transmissions from the greatest distance
- Display Hold Switch Locks current Measurement



The New Model 3300 MiniCounter breaks the LED counter tradition. From our first Model FC50 (1976) to our latest Model 2300, we have always had quality LED counters. But LEDs are power hungry, failure prone and unreadable in sun light. So the LED counter has now gone the way of the LED wristwatch—replaced by LCD. The LCD advantages include lower power, better reliability, smaller package, more information displayed and better viewing characteristics.

Introductory Price
$129.00
MADE IN THE USA

ACTUAL SIZE!
(Actual Size Hand!)

Model M1 & 3000A Hottest on the Market with:
Digital Filtering for the fastest method to reduce false counts–no loss of sensitivity & **Digital Auto Capture** that auto holds and stores – working even near strong RF fields!

- **3000A-Multifunction HandiCounter®**
 - 15 gate times selectable • 7 hrs. Batt. life
- **M1-Full Range HandiCounter®**
 - 10 Gate times • 6 hrs. Battery life

Both offer:
- OE10 Ultra Fast & Reliable Counter IC
- Standard Backlit 10 digit LCD Display
- 16 Segment Signal Strength Bargraph
- 3 Data Storage Registers
- 1.3% of a second Measurement Rate
- 1Hz Resolution in 1 Sec. up to 250MHz
- 2 Wire Serial Output for Data Logging

3000A **$329.**
M1 **$229.**



OPTOELECTRONICS

TOLL FREE ORDER LINE
1-800-327-5912
305-771-2050 • FAX 305-771-2052
5821 NE 14th Ave, Ft. Laud., FL 33334
5% Ship/Handling (Min $5 & Max $10) U.S. & Canada.
15% outside continental U.S.
Visa, Master Card, C.O.D., Cash or Money Order only.

Kenwood's TH-22AT/42AT — Smaller, Lighter, Friendlier



TH-22AT/42AT
FM HANDHELD TRANSCEIVERS

Features

- 3-watt output from MOS FET power module and supplied 6-volt battery (TH-22AT: approx. 3 watts, TH-42AT: approx. 2.5 watts), and 5-watt output with optional PB-34!
- Compact design: 2-3/16 x 4-5/8 x 1 in.
- Built-in DTMF keypad with monitor
- Built-in DTSS page system ■ Large 1-7/16" speaker
- 41 E²PROM channel memories (including 1 call channel)
- Multiple scan functions (VFO, call & memory)
- Carrier-operated & time-operated scan stop modes
- Tone alert with elapsed time indicator
- Battery-saver circuit and auto power-off function to extend battery life ■ Selectable squelch configuration
- RF output power control (Hi/Low/EL)
- Built-in CTCSS encoder, optional TSU-8 decoder (any tone can be stored in any channel)
- User-friendly menu system to customize your operating preferences ■ Easy to program and use
- Modifiable for MARS and CAP. Specifications guaranteed for Amateur bands only. Permits required for MARS and CAP use.
- Wide range of accessories to enhance operating convenience and enjoyment

Power and performance are important factors in the choice of portable communications equipment—but too often this has meant abandoning the search for a transceiver that is smaller, lighter, and friendlier. Until now, that is. Kenwood has redefined the leading edge of handheld transceiver technology: meet the new TH-22AT (144MHz) and TH-42AT (440MHz). Slim enough to slip into your shirt pocket, these compact FM transceivers deliver full-size performance. How? The answer lies in the MOS FET power module—a world-first in this class—which enables low-voltage operation while enhancing reliability and increasing power output. This means longer hours of transceive operation on just one charge. The feature list is equally impressive, including a built-in DTMF keypad, easy-to-use menu system, multiple scan functions, and 41 E²PROM channel memories (including 1 call channel). You can even choose such options as a CTCSS decoder and a rapid charger. So if you're looking for full-featured fun in a palm-size package, check out Kenwood's TH-22AT and TH-42AT.

KENWOOD COMMUNICATIONS CORPORATION
AMATEUR RADIO PRODUCTS GROUP
P.O. BOX 22745, 2201 East Dominguez St., Long Beach, CA 90801-5745
KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario L5T 1S8

KENWOOD

93ARD-0817